03/11/2024 Kit Components		
Product code	t code Description	
ICP-KIT-1	Plasma Emission Standards Kit 1	
Components:		
PLAG2-2Y	1000 µg/mL Silver	
PLAL2-2Y	1000 μg/mL Aluminum	
PLAS2-2Y	1000 μg/mL Arsenic	
PLB9-2Y	1000 µg/mL Boron	
PLBA2-2Y	1000 µg/mL Barium	
PLBE2-2Y	1000 μg/mL Beryllium	
PLBI4-2Y	1000 µg/mL Bismuth	
PLCA2-2Y	1000 μg/mL Calcium	
PLCD2-2Y	1000 μg/mL Cadmium	
PLCO2-2Y	1000 µg/mL Cobalt	
PLCR2-2Y	1000 µg/mL Chromium	
PLCU2-2Y	1000 µg/mL Copper	
PLFE2-2Y	1000 μg/mL Iron	
PLHG4-2Y	1000 μg/mL Mercury	
PLK2-2Y	1000 μg/mL Potassium	
PLLI2-2Y	1000 μg/mL Lithium	
PLMG2-2Y	1000 μg/mL Magnesium	
PLMN2-2Y	1000 µg/mL Manganese	
PLMO9-2Y	1000 μg/mL Molybdenum	
PLNA2-2Y	1000 μg/mL Sodium	
PLNB9-2Y	1000 µg/mL Niobium	
PLNI2-2Y	1000 µg/mL Nickel	
PLP9-2Y	1000 μg/mL Phosphorus	
PLPB2-2Y	1000 µg/mL Lead	
PLS9-2Y	1000 µg/mL Sulfur	
PLSB7-2Y	1000 µg/mL Antimony	
PLSC2-2Y	1000 μg/mL Scandium	
PLSE2-2Y	1000 μg/mL Selenium	
PLSI9-2Y	1000 μg/mL Silicon	
PLSN5-2Y	1000 µg/mL Tin	
PLSR2-2Y	1000 µg/mL Strontium	
PLTI9-2Y	1000 µg/mL Titanium	
PLTL2-2Y	1000 µg/mL Thallium	
PLV2-2Y	1000 µg/mL Vanadium	
PLW9-2Y	1000 µg/mL Tungsten	
PLY2-2Y	1000 µg/mL Yttrium	
PLZN2-2Y	1000 µg/mL Zinc	
PLZR2-2Y	1000 µg/mL Zirconium	



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Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Silver</u>
- · Part Number:

PLAG2-2Y PLAG2-2M PLAG2-2T PLAG2-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

Product Name: 1000 µg/mL Silver

· Other hazards

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

 \cdot **Description:** Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

7761-88-8 silver nitrate

· Chemical identification of the substance/preparation

7732-18-5 water, distilled, conductivity or of similar purity

4 First-aid measures

- · Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Safety Data Sheet

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- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

Protective Action Criteria for Chemicals

7697-37-2 nitric acid	0.16 ppm
7761-88-8 silver nitrate	0.047 mg/m
· PAC-2:	
7697-37-2 nitric acid	24 ppm
7761-88-8 silver nitrate	0.9 mg/m
· PAC-3:	
7697-37-2 nitric acid	92 ppm
7761-88-8 silver nitrate	5.4 mg/m

7 Handling and storage

- · Handling:
- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.

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97.84%

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(Contd. of page 1)



Product Name: 1000 µg/mL Silver

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(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.
- Immediately remove all solled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and	chemical properties
· General Information	
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd. on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Silver

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		(Contd. of page 3)
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
· Density at 20 °C (68 °F)	1.01542 g/cm ³ (8.47368 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	er): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	97.8 %	
VOC content:	0.00 %	
Solids content:	0.2 %	
· Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.

· Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

ARC (International Agency for Research on Cancer)
None of the ingredients is listed.
NTP (National Toxicology Program)
None of the ingredients is listed.
OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Silver

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(Contd. of page 4)

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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable. *vPvB:* Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 an	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page 6

Safety Data Sheet

acc. to OSHA HCS



Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

Product Name: 1000 µg/mL Silver

(Contd.	of	page	5)
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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

· Sara	
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
7761-88-8 silver nitrate	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).	

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
 • Hazard pictograms



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 *Take off contaminated clothing and wash it before reuse.* P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Silver

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Reviewed on 03/11/2024

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

- Spex CertiPrep, LLC.
- 1-732-549-7144
- · Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

- ADR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Instrumentory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

US —



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Aluminum</u>
- · Part Number:

PLAL2-2Y PLAL2-2M PLAL2-2T PLAL2-2Z And States of the sector of the sect

- $\cdot \textit{Application of the substance / the mixture For Laboratory Use Only}$
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

- *Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300)*
- CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	<mark>1</mark> 0	Reactivity = 0

Product Name: 1000 µg/mL Aluminum

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

· Chemical identification of the substance/preparation

	7732-18-5	water, distilled, conductivity or of similar purity
--	-----------	---

7429-90-5 aluminium

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Safety Data Sheet

acc. to OSHA HCS

· Reference to other sections

See Section 7 for information on safe handling.

- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
• PAC-2:	
7697-37-2 nitric acid	24 ppm
• PAC-3:	
7697-37-2 nitric acid	92 ppm

7 Handling and storage

· Handling:

- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.

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Reviewed on 03/11/2024

(Contd. of page 1)

Product Name: 1000 µg/mL Aluminum

(Contd. of page 2)

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· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see section 7.

- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin. • **Respiratory protection:** Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- · Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· · ·	
• Information on basic physical and c • General Information	themical properties
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
• Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not applicable.
Upper:	Not applicable.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
• Density at 20 °C (68 °F)	1.01176 g/cm³ (8.44314 lbs/gal)
	Contd. on noor 1

Product Name: 1000 µg/mL Aluminum

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		(contait of page 5)
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/	/water): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	97.9 %	
VOC content:	0.00 %	
Solids content:	0.1 %	
• Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

- · Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)		
None of the ingredients is listed.		
· NTP (National Toxicology Program)		
None of the ingredients is listed.		
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- *Mobility in soil* No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.

Product Name: 1000 µg/mL Aluminum

 $\cdot \textit{Other adverse effects} \textit{ No further relevant information available}.$

13 Disposal considerations

· Waste treatment methods

• Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Safety Data Sheet

acc. to OSHA HCS

· Uncleaned packagings:

· Recommendation: Disposal must be made according to official regulations.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class	8 Corrosive substances
· Label	8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A
Stowage Code Segregation Code	SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACIL 8, III
	(Contd. on page

Reviewed on 03/11/2024

(Contd. of page 4)

_____ US ___

Product Name: 1000 µg/mL Aluminum

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

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A4

15 Regulatory information

 Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
7429-90-5 aluminium
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
· EPA (Environmental Protection Agency)
None of the ingredients is listed.
· TLV (Threshold Limit Value)

7429-90-5 aluminium

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). · Hazard pictograms



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation IATA: International Air Transport Association



Product Name: 1000 µg/mL Aluminum

EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LCSO: Lethal concentration, 50 percent LDSO: Lethal dose, 50 percent PBT: Persistent Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A Safety Data Sheet

acc. to OSHA HCS

(Contd. of page 6)

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US -



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Arsenic</u>
- Part Number: PLAS2-2Y
 PLAS2-2M
 PLAS2-2T
 PLAS2-2X
 Application of the substance / the mixture For Laboratory Use Only
 Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier: Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen, NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com
- · Information department: product safety department
- *Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887*

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Carcinogenicity 1A H350 May cause cancer.



Skin Irritation 2 H315 Causes skin irritation.

Eye Irritation 2A H319 Causes serious eye irritation.

- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Danger

- · Hazard-determining components of labeling:
- arsenic
- Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H350 May cause cancer.

· Precautionary statements

- P201Obtain special instructions before use.P202Do not handle until all safety precautions have been read and understood.
- P264 Wash thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 If on skin: Wash with plenty of water.
- P305+P351+P358 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.P308+P313IF exposed or concerned: Get medical advice/attention.P321Specific treatment (see on this label).P362+P364Take off contaminated clothing and wash it before reuse.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P352+P313 If skin irritation occurs: Get medical advice/attention. P337+P313 If eye irritation persists: Get medical advice/attention.
- P405 If eye initiation J Store locked up.

Product Name: 1000 µg/mL Arsenic

- - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- Classification system: • NFPA ratings (scale 0 - 4)



 $\bigcirc Reactivity = 0$

· HMIS-ratings (scale 0 - 4)



· Other hazards

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:		
7697-37-2 nitric acid	2.0%	
7440-38-2 arsenic	0.1%	
· Chemical identification of the substance/preparation		
7732-18-5 water, distilled, conductivity or of similar purity	97.9%	

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to section 13.
- Ensure adequate ventilation.
- · Reference to other sections
- See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.
- \cdot Protective Action Criteria for Chemicals

· PAC-1:

7697-37-2 nitric acid

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Product Name: 1000 µg/mL Arsenic

	(Contd. of page 2)
7440-38-2 arsenic	$1.5 mg/m^3$
· PAC-2:	
7697-37-2 nitric acid	24 ppm
7440-38-2 arsenic	17 mg/m ³
• PAC-3:	
7697-37-2 nitric acid	92 ppm
7440-38-2 arsenic	100 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

· Information about protection against explosions and fires: Keep respiratory protective device available.

· Conditions for safe storage, including any incompatibilities

· Storage:

- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see section 7.

· Control parameters

· Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

7440-38-2 arsenic

 PEL
 Long-term value: 0.5* 0.01** mg/m³

 as As; *organic**inorg. compds.; 29 CFR 1910.1018

- REL Ceiling limit value: 0.002 mg/m³ as As; 15min; See Pocket Guide App. A
- TLV Long-term value: 0.01 mg/m^3

as As; BEI, A1

· Ingredients with biological limit values:

7440-38-2 arsenic

BEI 35 µg As/L

Medium: urine Time: end of workweek

Parameter: Inorganic arsenic plus methylated metabolites (background)

• Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

- · Personal protective equipment:
- General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Store protective clothing separately.
- Avoid contact with the eyes.

Avoid contact with the eyes and skin.

• Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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Product Name: 1000 µg/mL Arsenic

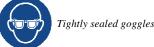
(Contd. of page 3)

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· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



9 Physical and chemical properties

Information on basic physical and chemical properties			
• General Information • Appearance:			
Form:	Liquid		
Color:	According to product specification		
· Odor:	Characteristic		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
· Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
• Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
\cdot Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
· Density at 20 °C (68 °F)	1.01479 g/cm ³ (8.46842 lbs/gal)		
· Relative density	Not applicable.		
· Vapor density	Not applicable.		
· Evaporation rate	Not applicable.		
· Solubility in / Miscibility with			
Water:	Fully miscible.		
· Partition coefficient (n-octanol/wate	· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
· Solvent content:	07.0 %		
Water:	97.9 % 0.00 %		
VOC content:			
Solids content:	0.1 %		
• Other information	No further relevant information available.		

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions No dangerous reactions known.

• Conditions to avoid No further relevant information available.

- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:
- The product shows the following dangers according to internally approved calculation methods for preparations:
- · Carcinogenic categories

	-	-		
· IARC	(Internatio	nal Agency	for Research on	Cancer)

7440-38-2 arsenic

Irritant

· NTP (National Toxicology Program)

7440-38-2 arsenic

OSHA-Ca (Occupational Safety & Health Administration)

7440-38-2 arsenic

12 Ecological information

· Toxicity

- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.
- 13 Disposal considerations
- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
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Safety Data Sheet acc. to OSHA HCS

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Printing date 03/11/2024

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Product Name: 1000 µg/mL Arsenic

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Reviewed on 03/11/2024

	(Contd. of page
· Transport hazard class(es)	
·DOT	
CORROSIVE 0	
· Class	8 Corrosive substances
· Label	8
· ADR, IMDG, IATA	
· Class	8 Corrosive substances
· Label	8
· Packing group	
· DOT, ADR, IMDG, IATA	III
· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Corrosive substances
· Hazard identification number (Kemler code):	80
· EMS Number:	<i>F-A,S-B</i>
· Segregation groups	(SGG1) Acids
· Stowage Category · Stowage Code	A SW2 Clear of living quarters.
· Stowage Code · Segregation Code	SW2 Clear of tiving quarters. SG36 Stow "separated from" SGG18-alkalis.
Segregation Code	SG49 Stow "separated from" SGG6-cyanides
• Transport in bulk according to Annex II of MARPOL73/78 ar	
Transport/Additional information:	
• <i>ADR</i>	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
IMDG	
Limited quantities (LQ)	5L
Excepted quantities (EQ)	Code: El
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACIE 8, III

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture · Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
7440-38-2 arsenic
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
7440-38-2 arsenic
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
(Contd. on page 7)

Product Name: 1000 µg/mL Arsenic

Reviewed on 03/11/2024

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· Chemicals known to cause developmental toxicity:	

None of the ingredients is listed.

	<i>a</i> ·	•	
٠	Carcino	genic	categories

- · EPA (Environmental Protection Agency)
- 7440-38-2 arsenic

· TLV (Threshold Limit Value)

7440-38-2 arsenic

· NIOSH-Ca (National Institute for Occupational Safety and Health)

7440-38-2 arsenic

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



· Signal word Danger

· Hazard-determining components of labeling:

- arsenic
- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

H350 May cause cancer.

•	 Precautionary state 	ements and the second se
	P201	Obtain special instructions before use.
	P202	Do not handle until all safety precautions have been read and understood.
	P264	Wash thoroughly after handling.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P302+P352	If on skin: Wash with plenty of water.
	P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P308+P313	IF exposed or concerned: Get medical advice/attention.
	P321	Specific treatment (see on this label).
	P362+P364	Take off contaminated clothing and wash it before reuse.
	P332+P313	If skin irritation occurs: Get medical advice/attention.
	P337+P313	If eye irritation persists: Get medical advice/attention.
	P405	Store locked up.
	P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· National regulations:

· Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases

Safety Data Sheet acc. to OSHA HCS

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC. 1-732-549-7144
- · Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health

Reviewed on 03/11/2024

Product Name: 1000 µg/mL Arsenic

TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit BEI: Biological Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A Carcinogenicity 1A: Carcinogenicity – Category IA

(Contd. of page 7)

US —





Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: 1000 µg/mL Boron
- · Part Number:
- PLB9-2Y
- PLB9-2M PLB9-2T
- PLB9-2X
- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet • Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen,
- NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

• Emergency telephone number:

Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture The product is not classified, according to the Globally Harmonized System (GHS).

- · Label elements
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)

HEALTH0Health = 0FIRE0Fire = 0REACTIVITY0Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components: Not Regulated

· Chemical identification of the substance/preparation		
7732-18-5 water, distilled, conductivity or of similar purity	99.9%	
7440-42-8 Boron from Ammonium tetraborate tetrahydrate	0.1%	

4 First-aid measures

- \cdot Description of first aid measures
- · General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Generally the product does not irritate the skin.
- After eye contact: Rinse opened eye for several minutes under running water.
- \cdot After swallowing: Do not give anything to eat or drink Do not induce vomitting



Product Name: 1000 µg/mL Boron

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). • Reference to other sections
- See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

Protective Action Criteria for Chemicals

· PAC-1:

	0
· PAC-2:	
7440-42-8 Boron from Ammonium tetraborate tetrahydrate	21 mg/m ³
• PAC-3:	
7440-42-8 Boron from Ammonium tetraborate tetrahydrate	130 mg/m ³

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special measures required.
- Follow good laboratory practices.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
- · Respiratory protection: Not required.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 3)

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Product Name: 1000 µg/mL Boron

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties		
Information on basic physical and c General Information Appearance:	hemical properties	
Form:	Liquid	
Color:	According to product specification	
· Odor:	Characteristic	
· Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
• Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
• Danger of explosion:	Product does not present an explosion hazard.	
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
· Density	Not applicable.	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
 Solubility in / Miscibility with Water: 	Fully miscible.	
· Partition coefficient (n-octanol/wate	r): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
Solvent content:		
Water:	99.9 % 0.00 %	
VOC content:		
Solids content:	0.0 %	
• Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- \cdot Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- Additional toxicological information:

Page 3/5

Product Name: 1000 µg/mL Boron

Safety Data Sheet acc. to OSHA HCS

(Contd. of page 3)

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When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories
· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.
· NTP (National Toxicology Program)
None of the ingredients is listed.
· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

· Toxicity

- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available.}$
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes: Not hazardous for water.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- \cdot Waste treatment methods
- · Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- $\cdot \textit{Recommended cleansing agent: Water, if necessary with cleansing agents.}$

14 Transport information

· UN-Number · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated	
· Packing group · DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	
• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
· UN "Model Regulation":	Not Regulated	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
 Sara

· Section 313 (Specific toxic chemical listings):	
None of the ingredients is listed.	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
	(Contd on page 5)

us —

certipren Printing date 03/11/2024

Product Name: 1000 µg/mL Boron

Reviewed on 03/11/2024

	(Contd. of page 4)
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
7440-42-8 Boron from Ammonium tetraborate tetrahydrate	I (oral)

· TLV (Threshold Limit Value)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements Not Regulated

· Hazard pictograms Not Regulated

- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.

1-732-549-7144

- · Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- IMDDs: International Martume Code for Dangerous Goods DOT: US Department of Transport Association IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: Chemical Abstracts Service (division of the American Chemical Society) NEDA (Microal Even Department)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit



Reviewed on 02/12/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Barium</u>
- · Part Number:

PLBA2-2Y PLBA2-2M PLBA2-2T PLBA2-2X • Application of the substance / the mi

- Application of the substance / the mixture For Laboratory Use Only
- Uses advised against Not for Human or Animal Use • Details of the supplier of the safety data sheet
- Manufacturer/Suppliers Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVIT	YO	Reactivity = 0

Product Name: 1000 µg/mL Barium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

	2.0 %
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	97.81%
10022-31-8 barium nitrate	0.19%

Safety Data Sheet acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
10022-31-8 barium nitrate	2.9 mg/m ³
· PAC-2:	
7697-37-2 nitric acid	24 ppm
10022-31-8 barium nitrate	350 mg/m ³
• PAC-3:	
7697-37-2 nitric acid	92 ppm
10022-31-8 barium nitrate	2,100 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

Reviewed on 02/12/2024

(Contd. of page 1)

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2 0%



Product Name: 1000 µg/mL Barium

Reviewed on 02/12/2024

(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- · Respiratory protection: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· · ·	
· Information on basic physical and	chemical properties
• General Information	
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Barium

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		(Contd. of page 3
Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F)	1.01432 g/cm ³ (8.4645 lbs/gal)	
Relative density	Not applicable.	
Vapor density	Not applicable.	
Evaporation rate	Not applicable.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wate	r): Not applicable.	
Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
Solvent content:		
Water:	97.8 %	
VOC content:	0.00 %	
Solids content:	0.2 %	
Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available.}$
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Barium

Reviewed on 02/12/2024

(Contd. of page 4)

- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 a	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page 6

Safety Data Sheet

acc. to OSHA HCS

(Contd. on page 6) – US —



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Product Name: 1000 µg/mL Barium

(Contd. of page 5)

· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara	
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
10022-31-8 barium nitrate	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
10022-31-8 barium nitrate	D, CBD(inh), NL(oral)
· TLV (Threshold Limit Value)	
10022-31-8 barium nitrate	A4
\cdot NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
. CHS label elements The product is classified and labeled according to the Globally Harmonized System (CHS)	

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). • Hazard pictograms



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 *Take off contaminated clothing and wash it before reuse.* P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Barium

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Reviewed on 02/12/2024

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

- ADR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Instrumentory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

US —



Reviewed on 02/06/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Beryllium</u>
- **Part Number:** PLBE2-2Y PLBE2-2M
- PLBE2-2T PLBE2-2X • Application of the substance / the mixture For Laboratory Use Only • Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Carcinogenicity 1A H350 May cause cancer.



Skin Irritation 2 H315 Causes skin irritation.

Eye Irritation 2A H319 Causes serious eye irritation.

- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Danger

- · Hazard-determining components of labeling:
- beryllium acetate
- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H350 May cause cancer.

· Precautionary statements

- *P201 Obtain special instructions before use.*
- P202 Do not handle until all safety precautions have been read and understood.
- P264 Wash thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- *P302+P352 If on skin: Wash with plenty of water.*
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

 P308+P313
 IF exposed or concerned: Get medical advice/attention.

 P321
 Specific treatment (see on this label).
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P405 Store locked up.

Product Name: 1000 µg/mL Beryllium

- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- · Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)



· Other hazards

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

-	components:
7697-37-2	nitric acid

543-81-7 beryllium acetate

Chemical identification of the substance/preparation

7732-18-5 water, distilled, conductivity or of similar purity

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

Safety Data Sheet

acc. to OSHA HCS

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to section 13.
- Ensure adequate ventilation.
- · Reference to other sections
- See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.
- Protective Action Criteria for Chemicals

· PAC-1:

7697-37-2 nitric acid

0.16 ppm (Contd. on page 3)

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2.0%

1.1%

96.9%

(Contd. of page 1)

Product Name: 1000 µg/mL Beryllium

Reviewed on 02/06/2024

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	(Contd. of page 2)
• PAC-2:	
7697-37-2 nitric acid	24 ppm
· PAC-3:	
7697-37-2 nitric acid	92 ppm

7 Handling and storage

· Handling:

· Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

- · Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities

· Storage:

- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see section 7.

· Control parameters

- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

- Avoid contact with the eyes and skin.
- · Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

• Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

- · Information on basic physical and chemical properties
- · General Information
- · Appearance: Form:

Liquid

Color:

· Odor:

Product Name: 1000 µg/mL Beryllium

	(Contd. of page 3)
According to product specification	
Characteristic	
Not applicable.	

• Danger of explosion: Product defined on the second s	ned. 2°F) able. able. able. not selfigniting. ves not present an explosion hazard. able. able.		
Melting point/Melting range: Boiling point/Boiling range: Undeterminity 100 °C (2) • Flash point: Not applie • Flash point: Not applie • Flash point: Not applie • Decomposition temperature: Not applie • Janger of explosion: Product is • Explosion limits: Lower: Lower: Not applie • Vapor pressure at 20 °C (68 °F): 23 hPa (17) • Density at 20 °C (68 °F) 1.01091 g, • Relative density Not applie • Vapor density Not applie • Evaporation rate Not applie • Solubility in / Miscibility with Water: • Partition coefficient (n-octanol/water): Not applie • Viscosity: Viscosity:	2°F) able. able. able. not selfigniting. pes not present an explosion hazard. able. able.		
• Flammability (solid, gaseous): Not applie • Decomposition temperature: Not applie • Ignition temperature: Product is • Ignition temperature: Product is • Danger of explosion: Product de • Explosion limits: Implie Lower: Not applie Upper: Not applie • Vapor pressure at 20 °C (68 °F): 23 hPa (17) • Density at 20 °C (68 °F) 1.01091 gr, • Relative density Not applie • Vapor density Not applie • Solubility in / Miscibility with Water: • Partition coefficient (n-octanol/water): Not applie • Viscosity: Viscosity:	able. able. not selfigniting. bes not present an explosion hazard. able. able.		
• Decomposition temperature: Not applie • Ignition temperature: Product is • Ignition temperature: Product delays • Danger of explosion: Product delays • Explosion limits: Ignition temperature: Ignition temperature: Product delays • Explosion limits: Not applie Ignition temperature: Not applie • Vapor pressure at 20 °C (68 °F): 23 hPa (12) • Density at 20 °C (68 °F) 1.01091 g. • Relative density Not applie • Vapor density Not applie • Vapor density Not applie • Solubility in / Miscibility with Water: • Partition coefficient (n-octanol/water): Not applie • Viscosity: Viscosity:	able. not selfigniting. pes not present an explosion hazard. able. able.		
• Ignition temperature: Product is • Ignition temperature: Product is • Danger of explosion: Product defined of the second o	not selfigniting. pes not present an explosion hazard. able. able.		
• Danger of explosion: Product detection • Danger of explosion: Product detection • Explosion limits: Not applie Lower: Not applie Upper: Not applie • Vapor pressure at 20 °C (68 °F): 23 hPa (17) • Density at 20 °C (68 °F) 1.01091 g, • Relative density Not applie • Vapor density Not applie • Vapor density Not applie • Evaporation rate Not applie • Solubility in / Miscibility with Water: • Partition coefficient (n-octanol/water): Not applie • Viscosity:	able.		
Explosion limits: Lower: Vapor pressure at 20 °C (68 °F): Vapor pressure at 20 °C (68 °F): Density at 20 °C (68 °F): Density at 20 °C (68 °F): Not applic Vapor density Not applic Vapor density Not applic Vapor density Not applic Vapor density Not applic Vapor density Not applic Viscosity:	able. able.		
Lower: Not applid Upper: Not applid · Vapor pressure at 20 °C (68 °F): 23 hPa (12 · Density at 20 °C (68 °F) 1.01091 g · Relative density Not applid · Vapor density Not applid · Vapor density Not applid · Solubility in / Miscibility with Water: · Partition coefficient (n-octanol/water): Not applid · Viscosity:	able.		
Density at 20 °C (68 °F) 1.01091 g, Relative density Not applic Vapor density Not applic Evaporation rate Not applic Solubility in / Miscibility with Water: Fully misc Partition coefficient (n-octanol/water): Not applic Viscosity:			
• Relative density Not applid • Vapor density Not applid • Evaporation rate Not applid • Solubility in / Miscibility with Water: • Partition coefficient (n-octanol/water): Not applid • Viscosity:	.5 mm Hg)		
Water: Fully misc • Partition coefficient (n-octanol/water): Not applied • Viscosity:	able.		
· Viscosity:	ible.		
	· Partition coefficient (n-octanol/water): Not applicable.		
Kinematic: Not applie			
• Solvent content: Water: 96.9 % VOC content: 0.00 %			
Solids content: 0.0 %			
• Other information No further			

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
543-81-7 beryllium acetate	1
· NTP (National Toxicology Program)	
543-81-7 beryllium acetate	K
	(Contd. on page 5)
	US

Product Name: 1000 µg/mL Beryllium

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(Contd. of page 4)

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods

• Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information · UN-Number · DOT, ADR, IMDG, IATA UN3264 · UN proper shipping name $\cdot DOT$ Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) $\cdot ADR$ · IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) · Transport hazard class(es) $\cdot DOT$ 8 Corrosive substances · Class · Label 8 · ADR, IMDG, IATA · Class 8 Corrosive substances · Label 8 · Packing group · DOT, ADR, IMDG, IATA Ш · Environmental hazards: Not applicable. Warning: Corrosive substances · Special precautions for user · Hazard identification number (Kemler code): 80 · EMS Number: F-A, S-B· Segregation groups (SGG1) Acids · Stowage Category · Stowage Code SW2 Clear of living quarters. (Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Product Name: 1000 µg/mL Beryllium

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	(Contd. of page 5)
· Segregation Code	SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/	78 and the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

· Sara · Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
543-81-7 beryllium acetate	
• TSCA (Toxic Substances Control Act):	
7732-18-5 water, distilled, conductivity or of similar purity	ACTIVE
7697-37-2 nitric acid	ACTIVE
· Hazardous Air Pollutants	
None of the ingredients is listed.	
Proposition 65	
· Chemicals known to cause cancer:	
543-81-7 beryllium acetate	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	

· NIOSH-Ca (National Institute for Occupational Safety and Health)

543-81-7 beryllium acetate

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).





· Signal word Danger

- · Hazard-determining components of labeling:
- beryllium acetate
- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H350 May cause cancer.



Product Name: 1000 µg/mL Beryllium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 02/06/2024

(Contd. of page 6)

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· Precautionary statements				
P201	Obtain special instructions before use.			
P202	Do not handle until all safety precautions have been read and understood.			
P264	Wash thoroughly after handling.			
P280	Wear protective gloves/protective clothing/eye protection/face protection.			
P302+P352	If on skin: Wash with plenty of water.			
P305+P351+P33	8 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.			
P308+P313	IF exposed or concerned: Get medical advice/attention.			
P321	Specific treatment (see on this label).			
P362+P364	Take off contaminated clothing and wash it before reuse.			
P332+P313	If skin irritation occurs: Get medical advice/attention.			
P337+P313	If eye irritation persists: Get medical advice/attention.			
P405	Store locked up.			
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.			

· National regulations:

· Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

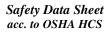
· Department issuing SDS: product safety department

· Contact: Spex CertiPrep, LLC. 1-732-549-7144 · Date of preparation / last revision 03/11/2024 · Abbreviations and acronyms: ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods IMDDs: International Martune Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European Ist of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NEDA: Michael Eventoria Development

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation C – Category 2A
- Carcinogenicity 1A: Carcinogenicity Category 1A

US —





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Reviewed on 01/18/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Bismuth</u>
- · Part Number:
- PLBI4-2Y
- PLBI4-2M PLBI4-2X
- Application of the substance / the mixture For Laboratory Use Only
- \cdot Uses advised against Not for Human or Animal Use
- \cdot Details of the supplier of the safety data sheet
- Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com
- Information department: product safety department
 Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Corrosion 1B H314 Causes severe skin burns and eye damage.

- *Eye Damage 1* H318 Causes serious eye damage.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Danger

- Hazard-determining components of labeling:
- nitric acid
- · Hazard statements
- H314 Causes severe skin burns and eye damage.
- · Precautionary statements
- P260 Do not breathe dusts or mists.
- *P264 Wash thoroughly after handling.*
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.P310Immediately call a poison center/doctor.P321Specific treatment (see on this label).P363Wash contaminated clothing before reuse.P405Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- · Classification system:
- NFPA ratings (scale 0 4)



Health = 3Fire = 0 Reactivity = 0



Product Name: 1000 µg/mL Bismuth

· HMIS-ratings (scale 0 - 4)

HEALTH	3	Health = 3
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:	
7697-37-2 nitric acid	10.0%
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	89.9%
7440-69-9 bismuth	0.1%

Safety Data Sheet

acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- Information for Doctor:
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture During heating or in case of fire poisonous gases are produced.

.

- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures	
Mount respiratory protective device.	
Wear protective equipment. Keep unprotected persons away.	
Environmental precautions:	
Dilute with plenty of water.	
Do not allow to enter sewers/ surface or ground water.	
Methods and material for containment and cleaning up:	
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).	
Use neutralizing agent.	
Dispose contaminated material as waste according to section 13.	
Ensure adequate ventilation.	
· Reference to other sections	
See Section 7 for information on safe handling.	
See Section 8 for information on personal protection equipment.	
See Section 13 for disposal information.	
· Protective Action Criteria for Chemicals	
· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
7440-69-9 bismuth	15 mg/m ³
· PAC-2:	
7697-37-2 nitric acid	24 ppm
7440-69-9 bismuth	170 mg/m ³
	(Contd. on page 3)

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Product Name: 1000 µg/mL Bismuth

			Cont	u. of page
	· PAC-3:			
ľ	7697-37-2	nitric acid		92 ppm
ľ	7440-69-9	bismuth		990 mg/m

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- Ensure good ventilation/exhaustion at the workplace.
- Prevent formation of aerosols.
- Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid contact with the eyes and skin.
- **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:



The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

- · Information on basic physical and chemical properties
- · General Information

· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic

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Safety Data Sheet acc. to OSHA HCS

Product Name: 1000 µg/mL Bismuth

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	(Contd. of page		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 83 °C (181.4 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
· Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
· Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits: Lower: Upper:	Not applicable. Not applicable.		
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
 Density at 20 °C (68 °F) Relative density Vapor density Evaporation rate 	1.0548 g/cm ³ (8.80231 lbs/gal) Not applicable. Not applicable. Not applicable.		
• Solubility in / Miscibility with Water:	Fully miscible.		
· Partition coefficient (n-octanol/wate	· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity: Dynamic: Kinematic:	Not applicable. Not applicable.		
· Solvent content: Water: VOC content:	89.9 % 0.00 %		
Solids content:	0.1 %		
· Other information	No further relevant information available.		

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

- 7697-37-2 nitric acid
- Inhalative LC50/4 h 2.65 mg/l (ATE)
- · Primary irritant effect:
- on the skin: Caustic effect on skin and mucous membranes.
- \cdot on the eye:
- Strong caustic effect.
- Strong irritant with the danger of severe eye injury.
- Sensitization: No sensitizing effects known.
- $\cdot \textit{Additional toxicological information:}$
- The product shows the following dangers according to internally approved calculation methods for preparations: Corrosive
- Irritant

Product Name: 1000 µg/mL Bismuth

(Contd. of page 4)

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	Carcino	oonic	catego	nries
•	Curcino	genic	cutege	nies

· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.
· NTP (National Toxicology Program)
None of the ingredients is listed.
· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 2 (Self-assessment): hazardous for water
- Do not allow product to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized. Danger to drinking water if even small quantities leak into the ground.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN2031
· UN proper shipping name · DOT · ADR · IMDG, IATA	Nitric acid solution 2031 NITRIC ACID solution NITRIC ACID solution
· Transport hazard class(es)	
·DOT	
CORROSIVE 8	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class	8 Corrosive substances
· Label	8
· Packing group · DOT, ADR, IMDG, IATA	Π
	(Contd. on page)

Product Name: 1000 µg/mL Bismuth

	(Contd. of page 5
· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Corrosive substances
· Hazard identification number (Kemler code):	80
· Segregation groups	(SGG1a) Strong acids
· Stowage Category	D
· Segregation Code	SG36 Stow "separated from" SGG18-alkalis.
	SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	ad the IBC Code Not applicable.
· Transport/Additional information:	
$\cdot ADR$	
· Excepted quantities (EQ)	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
· IMDG	
· Limited quantities (LQ)	1L
• Excepted quantities (EQ)	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 2031 NITRIC ACID SOLUTION, 8, II

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

· Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
· EPA (Environmental Protection Agency)
None of the ingredients is listed.
· TLV (Threshold Limit Value)
None of the ingredients is listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

• *GHS label elements* The product is classified and labeled according to the Globally Harmonized System (GHS). • *Hazard pictograms*



· Signal word Danger

• Hazard-determining components of labeling: nitric acid

· Hazard statements

H314 Causes severe skin burns and eye damage.



Product Name: 1000 µg/mL Bismuth

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· Precautionary sta	tements
P260	Do not breathe dusts or mists.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P33	1 If swallowed: Rinse mouth. Do NOT induce vomiting.
P303+P361+P35.	3 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P33	8 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a poison center/doctor.
P321	Specific treatment (see on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
· Chemical safety a	ssessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European Intentory of Easting Commercial chemical Statistics ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit Skin Corrosion 1B: Skin corrosion/irritation – Category 1B

Eye Damage 1: Serious eye damage/eye irritation - Category 1

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Reviewed on 01/18/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Calcium</u>
- · Part Number:

PLCA2-2Y PLCA2-2M PLCA2-2T PLCA2-2X • Application of the substance / the mixture For Laboratory Use Only

- Application of the substance / the mixture For Laboratory Use Only • Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVIT	YO	Reactivity = 0

Product Name: 1000 µg/mL Calcium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

107 57 2 mine acta	2.0 %
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	97.75%
471-34-1 calcium carbonate	0.25%

Safety Data Sheet acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
471-34-1 calcium carbonate	45 mg/m ³
· PAC-2:	
7697-37-2 nitric acid	24 ppm
471-34-1 calcium carbonate	210 mg/m ³
• PAC-3:	
7697-37-2 nitric acid	92 ppm
471-34-1 calcium carbonate	1,300 mg/m ³

7 Handling and storage

· Handling:

- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.

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2.0%





Product Name: 1000 µg/mL Calcium

Reviewed on 01/18/2024

(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

• Information on basic physical and • General Information • Appearance:	chemical properties
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd. on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Calcium

		(Contd. of page 2
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
· Density at 20 °C (68 °F)	1.01431 g/cm ³ (8.46442 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
• Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	er): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	97.8 %	
VOC content:	0.00~%	
Solids content:	0.3 %	
· Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

• on the skin: Irritant to skin and mucous membranes.

• on the eye: Irritating effect.

- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)		
None of the ingredients is listed.		
· NTP (National Toxicology Program)		
None of the ingredients is listed.		
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available}.$
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Calcium

Safety Data Sheet acc. to OSHA HCS

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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable. *vPvB:* Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page 6

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Product Name: 1000 µg/mL Calcium

(Contd. of page 5)

· Limited quantities (LQ)	5L
\cdot Excepted quantities (EQ)	Code: El
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

Sara	
Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
Hazardous Air Pollutants	
None of the ingredients is listed.	
Proposition 65	
Chemicals known to cause cancer:	
None of the ingredients is listed.	
Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
Carcinogenic categories	
EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
TLV (Threshold Limit Value)	
None of the ingredients is listed.	
NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). Hazard pictograms	



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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Safety Data Sheet acc. to OSHA HCS

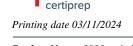
Product Name: 1000 µg/mL Calcium

ADDR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association

(Contd. of page 6)

· Department issuing SDS: product safety department · Contact: Spex CertiPrep, LLC. 1-732-549-7144 · Date of preparation / last revision 03/11/2024 · Abbreviations and acronyms:

EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LCS0: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic PB1: Persistent, Bioaccumulative and Toxic vpvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A



Reviewed on 01/18/2024



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Cadmium</u>
- Part Number: PLCD2-2Y PLCD2-2M PLCD2-2T PLCD2-2X • Application of the substance / the mixture For Laboratory Use Only
- Application of the substance / the mixture For Laboratory Use Only • Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Carcinogenicity 1A H350 May cause cancer.

Toxic to Reproduction 2 H361 Suspected of damaging fertility or the unborn child.



Skin Irritation 2 Eye Irritation 2A H315 Causes skin irritation. H319 Causes serious eye irritation.

- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



- · Signal word Danger
- · Hazard-determining components of labeling:

cadmium

- · Hazard statements
- H315 Causes skin irritation. H319 Causes serious eye irritation.
- H319 Causes serious eye i
- H350 May cause cancer.

H361 Suspected of damaging fertility or the unborn child.

· Precautionary statements

- P201Obtain special instructions before use.P202Do not handle until all safety precautions have been read and understood.P264Wash thoroughly after handling.P280Wear protective gloves/protective clothing/eye protection/face protection.P302+P352If on skin: Wash with plenty of water.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P321 Specific treatment (see on this label).
- *P362+P364 Take off contaminated clothing and wash it before reuse.*
- P332+P313 If skin irritation occurs: Get medical advice/attention.

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

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Product Name: 1000 µg/mL Cadmium

(Contd. of page 1)

 P337+P313
 If eye irritation persists: Get medical advice/attention.

 P405
 Store locked up.

 P501
 Dispose of contents/container in accordance with local/regional/national/international regulations.

 • Classification system:

• NFPA ratings (scale 0 - 4)



· HMIS-ratings (scale 0 - 4)

HEALTH*2FIRE0Fire = 0REACTIVITY0

· Other hazards

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- vPvB: Not applicable.

3 Composition/information on ingredients

1000 mg/L

· Chemical characterization: Mixtures

• **Description:** Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:		
7697-37-2 nitric acid	2.0%	
7440-43-9 cadmium	0.1%	
· Chemical identification of the substance/preparation		
7732-18-5water, distilled, conductivity or of similar purity97.		

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to section 13.
- Ensure adequate ventilation.
- Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

Product Name: 1000 µg/mL Cadmium

Safety	Data Sheet	
acc. to	OSHA HCS	

Safety

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(Contd. of page 2)

	(Contra of page 2)
· Protective Action Criteria for Chemicals	
• PAC-1:	
7697-37-2 nitric acid	0.16 ppm
7440-43-9 cadmium	0.10 mg/m ³
• PAC-2:	
7697-37-2 nitric acid	24 ppm
7440-43-9 cadmium	0.76 mg/m ³
• PAC-3:	
7697-37-2 nitric acid	92 ppm
7440-43-9 cadmium	4.7 mg/m ³

7 Handling and storage

· Handling:

- · Precautions for safe handling
- Ensure good ventilation/exhaustion at the workplace.
- Open and handle receptacle with care.
- Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

7440-43-9 cadmium

PEL Long-term value: 0.005 mg/m³ as Čd; see 29 CFR 1910.1027

REL See Pocket Guide App. A

- Long-term value: 0.01 0.002* mg/m³ TLV
- as Cd; A2; *respirable fraction; BEI

Ingredients with biological limit values:

7440-43-9 cadmium

BEI 5 µg/g creatinine Medium: urine Time: not critical Parameter: Cadmium (background) $5 \mu g/L$

Medium: blood Time: not critical Parameter: Cadmium (background)

· Additional information: The lists that were valid during the creation were used as basis.

- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Product Name: 1000 µg/mL Cadmium

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and c	chemical properties
· General Information	
· Appearance:	the state of the s
Form:	Liquid
Color: • Odor:	According to product specification Characteristic
• Odor: • Odour Threshold:	
	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
• Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not applicable.
Upper:	Not applicable.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
• Density at 20 °C (68 °F)	1.0177 g/cm ³ (8.49271 lbs/gal)
· Relative density	Not applicable.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/wate	e r): Not applicable.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Water:	97.9 %
VOC content:	0.00 %
Solids content:	0.1 %
• Other information	No further relevant information available.
	(Contd. on page 5)

Reviewed on 03/11/2024

(Contd. of page 3)

Safety Data Sheet acc. to OSHA HCS

Product Name: 1000 µg/mL Cadmium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

(Contd. of page 4)

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10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

- 7697-37-2 nitric acid
- Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primarv irritant effect:

- · on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Irritant

Product is suspected to cause damage to fertility.

Product is suspected to cause birth defects.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
7440-43-9 cadmium	1
· NTP (National Toxicology Program)	
7440-43-9 cadmium	K
· OSHA-Ca (Occupational Safety & Health Administration)	
7440-43-9 cadmium	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Water hazard class 3 (Self-assessment): extremely hazardous for water

- Do not allow product to reach ground water, water course or sewage system, even in small quantities.
- Danger to drinking water if even extremely small quantities leak into the ground.
- Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- Recommended cleansing agent: Water, if necessary with cleansing agents.

(Contd. on page 6)



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(Contd. of page 5)

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
• DOT	8 Corrosive substances
·Label	8
· ADR, IMDG, IATA	8 Corrosive substances
· Label	8
· Packing group · DOT, ADR, IMDG, IATA	III
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
• Transport in bulk according to Annex II of MARPOL73/78 a	und the IBC Code Not applicable.
· Transport/Additional information:	**
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACII 8, III

15 Regulatory information

\cdot Safety, health and environmental regulations/legislation specific for the substance or mix \cdot Sara	ture
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
7440-43-9 cadmium	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
	(Contd. on page 7)

(Contd. on page 7)

A2

Printing date 03/11/2024

Product Name: 1000 µg/mL Cadmium

Reviewed on 03/11/2024

(Contd. of page 6)

	Pro	position	65
•	rro	position	05

· Troposition 05
· Chemicals known to cause cancer:
7440-43-9 cadmium
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
7440-43-9 cadmium
· Chemicals known to cause developmental toxicity:
7440-43-9 cadmium
· Carcinogenic categories
· EPA (Environmental Protection Agency)
7440-43-9 cadmium B1
· TLV (Threshold Limit Value)

7440-43-9 cadmium

· NIOSH-Ca (National Institute for Occupational Safety and Health)

7440-43-9 cadmium

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



· Signal word Danger

- · Hazard-determining components of labeling:
- cadmium
- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation. H350 May cause cancer.
- H361 Suspected of damaging fertility or the unborn child.
- · Precautionary statements
- P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P264 Wash thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection. P302+P352 If on skin: Wash with plenty of water. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 IF exposed or concerned: Get medical advice/attention. P321 Specific treatment (see on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P332+P313 If skin irritation occurs: Get medical advice/attention. P337+P313 If eye irritation persists: Get medical advice/attention. P405 Store locked up. P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· National regulations:

· Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.

1-732-549-7144 • Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation



Product Name: 1000 µg/mL Cadmium

IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LCS0: Lethal concentration, 50 percent LD50: Lethal concentration, 50 percent PBT: Persistent, Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REI: Biological Exposure Limit BEI: Biological Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation 2: Skin corrosion/irritation – Category IA Toxic to Reproduction 2: Reproductive toxicity – Category 2 Safety Data Sheet

acc. to OSHA HCS

- US —

Reviewed on 03/11/2024

(Contd. of page 7)



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Cobalt</u>
- · Part Number:

PLCO2-2Y PLCO2-2M PLCO2-2T PLCO2-2Z • Application of the substance / the mixture For Laboratory Use Only • Uses advised against Not for Human or Animal Use

- Details of the supplier of the safety data sheet • Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA
- NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Sensitization - Respiratory 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.			
Carcinogenicity 2	H351 Suspected of causing cancer.		
Toxic to Reproduction 1B	H360 May damage fertility or the unborn child.		



Skin Irritation 2H315 Causes skin irritation.Eye Irritation 2AH319 Causes serious eye irritation.Sensitization - Skin 1H317 May cause an allergic skin reaction.

· Label elements

- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Danger

- · Hazard-determining components of labeling:
- cobalt
- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H351 Suspected of causing cancer.
- H360 May damage fertility or the unborn child.

Precautionary statements

- P261 Avoid breathing dust/fume/gas/mist/vapors/spray
- P264 Wash thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P284 [In case of inadequate ventilation] wear respiratory protection.
- P304+P341 If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

(Contd. on page 2)

Product Name: 1000 µg/mL Cobalt

Reviewed on 03/11/2024

IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
Take off contaminated clothing and wash it before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
<i>If experiencing respiratory symptoms: Call a poison center/doctor.</i>
Wash contaminated clothing before reuse.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Safety Data Sheet acc. to OSHA HCS

Classification system:
 NFPA ratings (scale 0 - 4)

 $\begin{array}{c} \textbf{Health} = 2\\ \textbf{Fire} = 0\\ \textbf{Reactivity} = 0 \end{array}$

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
		Fire = 0
REACTIVITY	0	Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:	
7697-37-2 nitric acid	2.0%
7440-48-4 cobalt	0.1%
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	97.9%

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation:
- Supply fresh air and to be sure call for a doctor.
- In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Safety Data Sheet acc. to OSHA HCS

Printing date 03/11/2024

Product Name: 1000 µg/mL Cobalt

Reviewed on 03/11/2024

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Dispose contaminated	material as waste	e according to section 13.	

- Ensure adequate ventilation. • Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
7440-48-4 cobalt	0.18 mg/m ³
· PAC-2:	
7697-37-2 nitric acid	24 ppm
7440-48-4 cobalt	$2 mg/m^3$
· PAC-3:	
7697-37-2 nitric acid	92 ppm
7440-48-4 cobalt	20 mg/m ³

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- Ensure good ventilation/exhaustion at the workplace. Open and handle receptacle with care. Prevent formation of aerosols.
- · Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see section 7.

· Control parameters

- · Components with limit values that require monitoring at the workplace:
- The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

7440-48-4 cobalt

- PEL Long-term value: 0.1* mg/m³
- as Co; *for metal dust and fume
- REL Long-term value: 0.05 mg/m³ as Co; metal dust & fume
- TLV Long-term value: 0.005* mg/m³ *thoracic particulate matter, RSEN, A2

· Ingredients with biological limit values:

7440-48-4 cobalt BEI 15 μg/L

Medium: urine

Time: end of shift at end of workweek

Parameter: Cobalt (nonspecific)

• Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

- · Personal protective equipment:
- General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes.

Avoid contact with the eyes and skin.

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· Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- Material of gloves
- The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- *Penetration time of glove material* The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • *Eye protection:*



Tightly sealed goggles

9 Physical and chemical properties

9 Physical and chemical propertie	S
· Information on basic physical and c · General Information · Appearance:	hemical properties
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not applicable.
Upper:	Not applicable.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
· Density at 20 °C (68 °F)	1.01796 g/cm ³ (8.49488 lbs/gal)
· Relative density	Not applicable.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/wate	pr): Not applicable.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Water:	97.9 %
VOC content:	0.00 %
Solids content:	0.1 %
	(Contd. on page -

Product Name: 1000 µg/mL Cobalt

• Other information

No further relevant information available.

Safety Data Sheet

acc. to OSHA HCS

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10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization:
- Sensitization possible through inhalation.
- Sensitization possible through skin contact.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

- Harmful
- Irritant

Product is suspected to cause damage to fertility.

Product is suspected to cause birth defects.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
7440-48-4 cobalt	28
· NTP (National Toxicology Program)	
7440-48-4 cobalt	R
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

· Toxicity

- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

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· Recommended cleansing agent: Water, if necessary with cleansing agents.

(Contd. of page 5)

14 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	8 Corrosive substances
· Label	8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and the IB	
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

7697-37-2 nitric acid 7440-48-4 cobalt • TSCA (Toxic Substances Control Act): All components have the value ACTIVE.	· Section 313 (Specific toxic chemical listings):	
· TSCA (Toxic Substances Control Act):	7697-37-2 nitric acid	
	7440-48-4 cobalt	
All components have the value ACTIVE.	· TSCA (Toxic Substances Control Act):	
	All components have the value ACTIVE.	

Product Name: 1000 µg/mL Cobalt

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	(Contd. of page 6)
· Hazardous Air Pollutants	
7440-48-4 cobalt	
Proposition 65	
· Chemicals known to cause cancer:	
7440-48-4 cobalt	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	

Safety Data Sheet acc. to OSHA HCS

· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
7440-48-4 cobalt	A3
· NIOSH-Ca (National Institute for Occupational Safety and Health)	

None of the ingredients is listed.

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



· Signal word Danger

· Hazard-determining components of labeling:

cobalt

- Hazard statements
- H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H360 May damage fertility or the unborn child.

· Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P284 [In case of inadequate ventilation] wear respiratory protection.

P304+P341 If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

- P321 Specific treatment (see on this label).
- *P362+P364* Take off contaminated clothing and wash it before reuse.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- *P337+P313 If eye irritation persists: Get medical advice/attention.*
- *P342+P311* If experiencing respiratory symptoms: Call a poison center/doctor.
- *P363* Wash contaminated clothing before reuse.
- P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.
- 1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)



Product Name: 1000 µg/mL Cobalt

IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LCSO: Lethal concentration, 50 percent LDSO: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit BEI: Biological Exposure Limit BEI: Biological Exposure Limit Skin Irritation 2A: Skino seye damage/eye irritation – Category 2A Sensitization - Respiratory 1: Respiratory sensitisation – Category 1 Sensitization - Respiratory 1: Respiratory sensitisation – Category 1 Sensitization - Skin 1: Skin sensitisation – Category 1 Sensitization - Skin 1: Skin sensitisation – Category 1 Sensitization - Sin Sensitisation – Category 1 Sensitization - Sin Sensitisation – Category 1 Sensitization - Sin Sensitisation – Category 1 Sensitization - Bistin sensitisation – Category 1 Sensitization - Bistin sensitisation – Category 1 Sensitization - Bistin sensitisation – Category 1 Toxic to Reproduction IB: Reproductive toxicity – Category 1B Safety Data Sheet

acc. to OSHA HCS

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Reviewed on 03/11/2024

(Contd. of page 7)



Reviewed on 01/22/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Chromium</u>
- · Part Number:

PLCR2-2Y PLCR2-2M PLCR2-2T PLCR2-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

- Emergency telephone number: Emergency Phone Number (24 hours)
- CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	<mark>1</mark> 0	Reactivity = 0

Product Name: 1000 µg/mL Chromium

· Other hazards

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

7077-57-2 min utu	2.0 %
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	97.23%
7789-02-8 Chromium(III) nitrate nonahydrate	0.77%

Safety Data Sheet acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
· PAC-2:	
7697-37-2 nitric acid	24 ppm
• PAC-3:	
7697-37-2 nitric acid	92 ppm

7 Handling and storage

· Handling:

- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.

(Contd. of page 1)

2 0%



Product Name: 1000 µg/mL Chromium

(Contd. of page 2)

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· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see section 7.

- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin. • **Respiratory protection:** Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- · Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties				
· General Information				
· Appearance:				
Form: Color:	Liquid			
· Odor:	According to product specification Characteristic			
Odour Threshold:	Not applicable.			
· pH-value:	Not applicable.			
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)			
· Flash point:	Not applicable.			
· Flammability (solid, gaseous):	Not applicable.			
· Decomposition temperature:	Not applicable.			
· Ignition temperature:	Product is not selfigniting.			
· Danger of explosion:	Product does not present an explosion hazard.			
· Explosion limits: Lower: Upper:	Not applicable. Not applicable.			
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)			
· Density at 20 °C (68 °F)	1.01625 g/cm ³ (8.48061 lbs/gal)			

Product Name: 1000 µg/mL Chromium

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		(
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/	l/water): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	97.2 %	
VOC content:	0.00 %	
Solids content:	0.0 %	
• Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

- · Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.
· NTP (National Toxicology Program)
None of the ingredients is listed.
· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available}.$
- *Mobility in soil* No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.

Product Name: 1000 µg/mL Chromium

 $\cdot \textit{Other adverse effects} \textit{ No further relevant information available}.$

13 Disposal considerations

· Waste treatment methods

• Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Safety Data Sheet

acc. to OSHA HCS

· Uncleaned packagings:

· Recommendation: Disposal must be made according to official regulations.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

Transport information	
UN-Number DOT, ADR, IMDG, IATA	UN3264
UN proper shipping name DOT ADR IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
Transport hazard class(es)	
DOT	
Class Label	8 Corrosive substances 8
ADR, IMDG, IATA	
Class	8 Corrosive substances
Label	8
Packing group DOT, ADR, IMDG, IATA	111
Environmental hazards:	Not applicable.
Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis.
	SG49 Stow "separated from" SGG6-cyanides
Transport in bulk according to Annex II of MARPOL73/78 and	the IBC Code Not applicable.
Transport/Additional information:	
ADR Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
IMDG Limited quantities (LQ) Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACI

Reviewed on 01/22/2024

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Reviewed on 01/22/2024

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15 Κρσπί	atory	into	rmation
10 Mugai	aiory	111,0	manon

· Safety, health and environmental regulations/legislation specific for the substance or mixture No furthe	r relevant information available.
· Sara	
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
7789-02-8 Chromium(III) nitrate nonahydrate	
· TSCA (Toxic Substances Control Act):	
7732-18-5 water, distilled, conductivity or of similar purity	ACTIVE
7697-37-2 nitric acid	ACTIVE
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	

· Carcinogenic categories

EPA (Environmental Protection Agency)
 None of the ingredients is listed.

 TLV (Threshold Limit Value)
 None of the ingredients is listed.

 NOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



· Signal word Warning

· Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling.
- P280 Wear eye protection / face protection.
- P302+P352 If on skin: Wash with plenty of water.
- P321 Specific treatment (see on this label).
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- *P332+P313* If skin irritation occurs: Get medical advice/attention.
- *P362+P364 Take off contaminated clothing and wash it before reuse.*
- *P337+P313* If eye irritation persists: Get medical advice/attention.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADB: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods



Product Name: 1000 µg/mL Chromium

DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSH: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A Safety Data Sheet

acc. to OSHA HCS

US —

Reviewed on 01/22/2024

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Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Copper</u>
- · Part Number:

PLCU2-2Y PLCU2-2M PLCU2-2T PLCU2-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

Product Name: 1000 µg/mL Copper

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

· Chemical identification of the substance/preparation

		÷				
7732-18-5	water,	distilled, co	nductivity or of s	similar purity		
7440-50-8	copper	r				

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Safety Data Sheet acc. to OSHA HCS

- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
7440-50-8 copper	3 mg/m ³
· PAC-2:	
7697-37-2 nitric acid	24 ppm
7440-50-8 copper	33 mg/m ³
· PAC-3:	
7697-37-2 nitric acid	92 ppm
7440-50-8 copper	200 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

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2.0%

97.9% 0.1%

(Contd. of page 1)



Product Name: 1000 µg/mL Copper

Reviewed on 03/11/2024

(Contd. of page 2)

- \cdot Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- \cdot Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- \cdot General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work. Avoid contact with the eyes.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin. • **Respiratory protection:** Not required.
- Respiratory protection: Not re • Protection of hands:
- I rolection of hanas:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· · ·	
· Information on basic physical and	chemical properties
• General Information	
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Copper

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		(Contd. of page 3)
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
\cdot Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
• Density at 20 °C (68 °F)	1.01802 g/cm ³ (8.49538 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	er): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	97.9 %	
VOC content:	0.00 %	
Solids content:	0.1 %	
· Other information	No further relevant information available.	

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.

· Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Copper

- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable. *vPvB:* Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page

Safety Data Sheet

acc. to OSHA HCS

Reviewed on 03/11/2024

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– US –



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Product Name: 1000 µg/mL Copper

· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
7440-50-8 copper
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
EPA (Environmental Protection Agency)
7440-50-8 copper
· TLV (Threshold Limit Value)
None of the ingredients is listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

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• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
 • Hazard pictograms



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 *Take off contaminated clothing and wash it before reuse.* P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

(Contd. on page 7)

US —

Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Copper

Reviewed on 03/11/2024

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

- Spex CertiPrep, LLC.
- 1-732-549-7144
- · Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

- ADR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Instrumentory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

(Contd. of page 6)



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Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: 1000 µg/mL Iron
- · Part Number:

PLFE2-2Y PLFE2-2M PLFE2-2T PLFE2-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
- 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

Product Name: 1000 µg/mL Iron

· Other hazards

· Results of PBT and vPvB assessment

• **PBT:** Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

Chemical identification of the substance/preparation

· Chemical menufication of the substance/preparation			
7732-18-5	water, distilled, conductivity or of similar purity	97.9%	
7439-89-6	iron	0.1%	

Safety Data Sheet acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
7439-89-6 iron	3.2 mg/m ³
· PAC-2:	
7697-37-2 nitric acid	24 ppm
7439-89-6 iron	35 mg/m ³
• PAC-3:	
7697-37-2 nitric acid	92 ppm
7439-89-6 iron	150 mg/m ³

7 Handling and storage

· Handling:

• Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

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(Contd. of page 1)

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2.0%



Product Name: 1000 µg/mL Iron

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- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- · Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

• Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and	chemical properties
· General Information	
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Iron

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		(Contd. of page 3
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F)	1.01692 g/cm ³ (8.4862 lbs/gal)	
Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	er): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
Solvent content:		
Water:	97.9 %	
VOC content:	0.00 %	
Solids content:	0.1 %	
• Other information	No further relevant information available.	

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10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.

· Sensitization: No sensitizing effects known.

• Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)		
None of the ingredients is listed.		
·NTP (National Toxicology Program)		
None of the ingredients is listed.		
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available}.$
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Iron

- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable. *vPvB:* Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information		
· UN-Number · DOT, ADR, IMDG, IATA	UN3264	
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)	
· Transport hazard class(es)		
· DOT		
· Class · Label	8 Corrosive substances 8	
· ADR, IMDG, IATA		
· Class · Label	8 Corrosive substances 8	
· Packing group · DOT, ADR, IMDG, IATA	111	
· Environmental hazards:	Not applicable.	
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides	
· Transport in bulk according to Annex II of MARPOL73/78 and	ad the IBC Code Not applicable.	
· Transport/Additional information:		
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml	
	(Contd. on page 6)	

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Product Name: 1000 µg/mL Iron

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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara	
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).	
· Hazard pictograms	



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other inform<u>ation</u>

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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Safety Data Sheet acc. to OSHA HCS

Printing date 03/11/2024

Product Name: 1000 µg/mL Iron

Department issuing SDS: product safety department
Contact:
Spex CertiPrep, LLC.
1-732-549-7144
Date of preparation / last revision 03/11/2024
Abbreviations and acronyms:
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ELINCS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hacardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LCS0: Lethal concentration, 50 percent
LDS0: Lethal concentration, 50 percent
LDS0: Lethal concentualitive and Toxic
VPVB: very Persistent and very Bioaccumulative
NIOSH: Autional Institute of Occupational Sefrys
OSHA: Occupational Safety & Health
TU: Threshold Limit Value
PEL: Permistible Exposure Limit
REL: Recommended Exposure Limit
Skin Irritation 2: Skin corrosion/irritation – Category 2A

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Reviewed on 03/11/2024



Reviewed on 02/14/2024

1 Identification

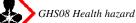
- · Product identifier
- · Product Name: 1000 µg/mL Mercury
- · Part Number: PLHG4-2Y PLHG4-2M PLHG4-2T PLHG4-2X · Application of the substance / the mixture For Laboratory Use Only · Uses advised against Not for Human or Animal Use
- · Details of the supplier of the safety data sheet · Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Toxic to Reproduction 1B H360 May damage fertility or the unborn child.



Skin Corrosion 1B	H314 Causes severe skin burns and eye damage.
Eye Damage 1	H318 Causes serious eye damage.

Eye Damage 1

· Label elements

- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Danger

- · Hazard-determining components of labeling:
- nitric acid
- mercury · Hazard statements
- H314 Causes severe skin burns and eye damage.
- H360 May damage fertility or the unborn child.

· Precautionary statements

- P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe dusts or mists.
- P264 Wash thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a poison center/doctor.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P321 Specific treatment (see on this label).

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Dispose of contents/container in accordance with local/regional/national/international regulations.

Reviewed on 02/14/2024

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Product Name: 1000 µg/mL Mercury

(Contd. of page 1)

- P363 Wash contaminated clothing before reuse. Store locked up.
- P405
- P501
- · Classification system:
- · NFPA ratings (scale 0 4)



- Fire = 0Reactivity = 0
- HMIS-ratings (scale 0 4)

HEALTH 3 Health = 30 FIRE Fire = 0Reactivity = 0**REACTIVITY** 0

- Other hazards
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous	· Dangerous components:		
7697-37-2	nitric acid	10.0%	
7439-97-6	mercury	0.1%	
· Chemical identification of the substance/preparation			
7732-18-5	water, distilled, conductivity or of similar purity	89.9%	

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture During heating or in case of fire poisonous gases are produced.
- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Mount respiratory protective device. Wear protective equipment. Keep unprotected persons away. Environmental precautions: Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water. · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent. Dispose contaminated material as waste according to section 13.
- Ensure adequate ventilation.

• Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

Product Name: 1000 µg/mL Mercury

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See Section 13 for disposal information. • Protective Action Criteria for Chemicals		
· PAC-1:	-	
7697-37-2 nitric acid	0.16 ppm	
7439-97-6 mercury	0.15 mg/m ³	
· PAC-2:		
7697-37-2 nitric acid	24 ppm	
7439-97-6 mercury	1.7 mg/m ³	
• PAC-3:		
7697-37-2 nitric acid 92 ppm		
7439-97-6 mercury	8.9 mg/m ³	

7 Handling and storage

· Handling:

· Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

- Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see section 7.

· Control parameters

- · Components with limit values that require monitoring at the workplace:
- The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
- At this time, the remaining constituent has no known exposure limits.

7439-97-6 mercury

PEL Long-term value: 0.1 mg/m³

as Hg; see OSHA standard interpretation memo

- Long-term value: 0.05* mg/m³ REL Ceiling limit value: 0.1 mg/m³ as Hg; *Vapor; Skin TLV Long-term value: 0.025 mg/m³
- as Hg; A4; Skin; BEI

· Ingredients with biological limit values:

ingi			
7439	7439-97-6 mercury		
BEI	<i>BEI</i> 20 μg/g creatinine		
	Medium: urine		
	Time: prior to shift		
	Parameter: Mercury		
· Add	• Additional information: The lists that were valid during the creation were used as basis.		

- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Product Name: 1000 µg/mL Mercury

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties			
· General Information			
· Appearance:			
Form:	Liquid		
Color:	According to product specification		
· Odor:	Characteristic		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
· Change in condition			
Melting point/Melting range:	Undetermined.		
Boiling point/Boiling range:	83 °C (181.4 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
· Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
• Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
\cdot Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
· Density at 20 °C (68 °F)	1.06284 g/cm ³ (8.8694 lbs/gal)		
Relative density	Not applicable.		
· Vapor density	Not applicable.		
· Evaporation rate	Not applicable.		
· Solubility in / Miscibility with			
Water:	Fully miscible.		
Partition coefficient (n-octanol/water): Not applicable.			
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
· Solvent content:			
Water:	89.9 %		
VOC content:	0.00 %		
Solids content:	0.0 %		
• Other information	No further relevant information available.		
	(Contd. on page 5)		

(Contd. of page 3)

Product Name: 1000 µg/mL Mercury

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10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

• on the skin: Caustic effect on skin and mucous membranes.

- on the eye:
- Strong caustic effect.

Strong irritant with the danger of severe eye injury.

• Sensitization: No sensitizing effects known.

\cdot Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Corrosive Irritant

Product is suspected to cause damage to fertility.

Product is suspected to cause birth defects.

· Carcinogenic categories

 \cdot IARC (International Agency for Research on Cancer)

7439-97-6 mercury

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 2 (Self-assessment): hazardous for water Do not allow product to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized. Danger to drinking water if even small quantities leak into the ground.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

3

· Recommended cleansing agent: Water, if necessary with cleansing agents.

(Contd. of page 5)

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14 Transport information		
· UN-Number · DOT, ADR, IMDG, IATA	UN2031	
· UN proper shipping name	012031	
· DOT · ADR	Nitric acid solution 2031 NITRIC ACID solution	
· IMDG, IATA	NITRIC ACID solution	
• Transport hazard class(es)		
- DOT		
· Class · Label	8 Corrosive substances 8	
· ADR, IMDG, IATA		
· Class	8 Corrosive substances	
	8	
· Packing group · DOT, ADR, IMDG, IATA	11	
· Environmental hazards:	Not applicable.	
 Special precautions for user Hazard identification number (Kemler code): Segregation groups Stowage Category Segregation Code 	Warning: Corrosive substances 80 (SGG1) Acids D SG6 Segregation as for class 5.1 SG16 Stow "separated from" class 4.1 SG17 Stow "separated from" class 5.1 SG19 Stow "separated from" class 7 SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides	
• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
• Transport/Additional information:		
· ADR · Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml	
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml	
· UN "Model Regulation":	UN 2031 NITRIC ACID SOLUTION, 8, II	

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15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. · Sara

· Section 313 (Specific toxic chemical listings): 7697-37-2 nitric acid 7439-97-6 mercury (Contd. on page 7)

Product Name: 1000 µg/mL Mercury

Reviewed on 02/14/2024

(Co	ntd. of page 6)
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
7439-97-6 mercury	
· Carcinogenic categories	

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· EPA (Environmental Protection Agency)	
7439-97-6 mercury	
· TLV (Threshold Limit Value)	
7439-97-6 mercury	A4
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the inpredients is listed	

of the ingredients is liste

GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



· Signal word Danger

- · Hazard-determining components of labeling:
- nitric acid
- mercury
- Hazard statements
- H314 Causes severe skin burns and eye damage.
- H360 May damage fertility or the unborn child.

· Precautionary statements

- P201 Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood. P202
- P260 Do not breathe dusts or mists.
- P264 Wash thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a poison center/doctor. P310
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P321 Specific treatment (see on this label). Wash contaminated clothing before reuse. P363
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.
- 1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)



Product Name: 1000 µg/mL Mercury

IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transport Association
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LCS0: Lethal concentration, 50 percent
LDS0: Lethal concentration, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Isfery & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
ES: Biological Exposure Limit
Skin Corrosion IB: Skin corrosion/iritation – Category IB
Eye Damage 1: Serious eye damage/eye irritation – Category IB
Toxic to Reproduction IB: Reproductive toxicity – Category IB

Safety Data Sheet

acc. to OSHA HCS

Reviewed on 02/14/2024

(Contd. of page 7)

us —



Reviewed on 01/22/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Potassium</u>
- · Part Number:

PLK2-2Y PLK2-2M PLK2-2T

PLK2-2X • Application of the substance / the mixture For Laboratory Use Only

· Uses advised against Not for Human or Animal Use

Details of the supplier of the safety data sheet
Manufacturer/Supplier: Spex CertiPrep, LLC.
203 Norcross Ave, Metuchen, NJ 08840 USA

732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

Eye Irritation 2A H319 Causes serious eye irritation.

· Label elements

- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

· Hazard statements

- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVIT	Y 0	Reactivity = 0

Product Name: 1000 µg/mL Potassium

· Other hazards

· Results of PBT and vPvB assessment

• **PBT:** Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

· Chemical i	dentification of the substance/preparation
7732-18-5	water, distilled, conductivity or of similar purity
7757-79-1	potassium nitrate

Safety Data Sheet

acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

PAC-1:	
7697-37-2 nitric acid	0.16 ppm
7757-79-1 potassium nitrate	9 mg/m ³
• PAC-2:	
7697-37-2 nitric acid	24 ppm
7757-79-1 potassium nitrate	100 mg/m-
• PAC-3:	
7697-37-2 nitric acid	92 ppm
7757-79-1 potassium nitrate	600 mg/m

7 Handling and storage

· Handling:

- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.

Reviewed on 01/22/2024

(Contd. of page 1)

2.0%

97.74% 0.26%



Product Name: 1000 µg/mL Potassium

Reviewed on 01/22/2024

(Contd. of page 2)

- \cdot Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· · ·		
· Information on basic physical and chemical properties		
• General Information		
· Appearance:		
Form:	Liquid	
Color:	According to product specification	
· Odor:	Characteristic	
· Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
· Change in condition		
Melting point/Melting range:	Undetermined.	
Boiling point/Boiling range:	100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
· Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
· Danger of explosion:	Product does not present an explosion hazard.	
	(Contd on page 4)	

(Contd. on page 4)

Product Name: 1000 µg/mL Potassium

		(Contd. of page 3)
· Explosion limits: Lower: Upper:	Not applicable. Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
• Density at 20 °C (68 °F) • Relative density • Vapor density • Evaporation rate	1.01294 g/cm³ (8.45298 lbs/gal) Not applicable. Not applicable. Not applicable.	
• Solubility in / Miscibility with Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	er): Not applicable.	
· Viscosity: Dynamic: Kinematic:	Not applicable. Not applicable.	
· Solvent content: Water: VOC content:	97.7 % 0.00 %	
Solids content:	0.3 %	
• Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

• on the skin: Irritant to skin and mucous membranes.

• on the eye: Irritating effect.

- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- \cdot **Bioaccumulative potential** No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Potassium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 01/22/2024

(Contd. of page 4)

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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable. *vPvB:* Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
\cdot Transport in bulk according to Annex II of MARPOL73/78 an	d the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page of



Product Name: 1000 µg/mL Potassium

(Contd.	of	page	5)
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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

· Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
7757-79-1 potassium nitrate
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
Carcinogenic categories
· EPA (Environmental Protection Agency)
None of the ingredients is listed.
· TLV (Threshold Limit Value)
None of the ingredients is listed.
·NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS)

• *GHS label elements* The product is classified and labeled according to the Globally Harmonized System (GHS). • *Hazard pictograms*



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 *Take off contaminated clothing and wash it before reuse.* P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Potassium

(Contd. of page 6)

Reviewed on 01/22/2024

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

- ADR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Instrumentory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

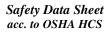
- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

US —





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Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: 1000 µg/mL Lithium
- · Part Number:
- PLLI2-2Y
- PLLI2-2M PLLI2-2X
- · Application of the substance / the mixture For Laboratory Use Only · Uses advised against Not for Human or Animal Use
- · Details of the supplier of the safety data sheet
- · Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com
- · Information department: product safety department · Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



- · Signal word Warning · Hazard statements H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- Wash thoroughly after handling. P264
- P280 Wear eye protection / face protection.
- P302+P352 If on skin: Wash with plenty of water.
- P321 Specific treatment (see on this label).
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313
- If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. P362+P364
- P337+P313 If eye irritation persists: Get medical advice/attention.
- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2Fire = 0Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Product Name: 1000 µg/mL Lithium

· Other hazards

· Results of PBT and vPvB assessment

• **PBT:** Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

1071-51-2 hinte ded	2.0 /0
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	97.47%
554-13-2 lithium carbonate	0.53%

Safety Data Sheet acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

• PAC-1: 7697-37-2 nitric acid	0.16 ppm
554-13-2 lithium carbonate	3.1 mg/m
PAC-2:	
7697-37-2 nitric acid	24 ppm
554-13-2 lithium carbonate	34 mg/m
· PAC-3:	
7697-37-2 nitric acid	92 ppm
554-13-2 lithium carbonate	210 mg/m

7 Handling and storage

· Handling:

- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.

Reviewed on 03/11/2024

(Contd. of page 1)

Page 2/7

2 0%



Product Name: 1000 µg/mL Lithium

Reviewed on 03/11/2024

(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

v <u>1</u>	
· Information on basic physical and · General Information · Appearance:	chemical properties
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd. on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Lithium

		(Contd. of page 3)
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
• Density at 20 °C (68 °F)	1.01594 g/cm ³ (8.47802 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	r): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	97.5 %	
VOC content:	0.00 %	
Solids content:	0.5 %	
· Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.

· Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

ARC (International Agency for Research on Cancer)
lone of the ingredients is listed.
NTP (National Toxicology Program)
lone of the ingredients is listed.
OSHA-Ca (Occupational Safety & Health Administration)
lone of the ingredients is listed.

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Lithium

- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page

Safety Data Sheet

acc. to OSHA HCS

Reviewed on 03/11/2024

(Contd. of page 4)

(Contd. on page 6)



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Product Name: 1000 µg/mL Lithium

(Contd. of page 5)

· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
554-13-2 lithium carbonate
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
554-13-2 lithium carbonate
· Carcinogenic categories
· EPA (Environmental Protection Agency)
None of the ingredients is listed.
· TLV (Threshold Limit Value)
None of the ingredients is listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.
• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

• *GHS label elements* The product is classified and labeled according to the Globally Harmonized System (GHS) • *Hazard pictograms*



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 *Take off contaminated clothing and wash it before reuse.* P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Lithium

(Contd. of page 6)

Reviewed on 03/11/2024

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

- ADR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Instrumentory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

US —



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Magnesium</u>
- Part Number: PLMG2-2Y PLMG2-2M PLMG2-2T PLMG2-2X
- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVIT	YO	Reactivity = 0

Product Name: 1000 µg/mL Magnesium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

conductivity or of similar purity

· Dangerous components:

7697-37-2 nitric acid

Chemical identification of the substance/preparation

7732-18-5	water, distilled,

7439-95-4 magnesium

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals DAC

7697-37-2 nitric acid	0.16 ppn
7439-95-4 magnesium	18 mg/m
· PAC-2:	
7697-37-2 nitric acid	24 ppm
7439-95-4 magnesium	200 mg/m
• PAC-3:	
7697-37-2 nitric acid	92 ppm
7439-95-4 magnesium	1,200 mg/m

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

(Contd. of page 1)

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Safety Data Sheet acc. to OSHA HCS



Product Name: 1000 µg/mL Magnesium

Reviewed on 03/11/2024

(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- · Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

Information on basic physical and chemical properties	
· General Information	
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd. on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Magnesium

(Contd of page 3)

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	(Conta. of page 5)
· Explosion limits:	
Lower:	Not applicable.
Upper:	Not applicable.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
• Density at 20 °C (68 °F)	1.0108 g/cm ³ (8.43513 lbs/gal)
· Relative density	Not applicable.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/wate	er): Not applicable.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Water:	97.9 %
VOC content:	0.00~%
Solids content:	0.1 %
· Other information	No further relevant information available.

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.

· Sensitization: No sensitizing effects known.

• Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Magnesium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

(Contd. of page 4)

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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 an	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page 6



Product Name: 1000 µg/mL Magnesium

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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

Sara
Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
Hazardous Air Pollutants
None of the ingredients is listed.
Proposition 65
Chemicals known to cause cancer:
None of the ingredients is listed.
Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
Carcinogenic categories
EPA (Environmental Protection Agency)
None of the ingredients is listed.
TLV (Threshold Limit Value)
None of the ingredients is listed.
NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). Hazard pictograms



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other inform<u>ation</u>

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

us —

Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Magnesium

· Contact: Spex CertiPrep, LLC. 1-732-549-7144 · Date of preparation / last revision 03/11/2024 · Abbreviations and acronyms: ADDR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LCS0: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic PB1: Persistent, Bioaccumulative and Toxic vpvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

(Contd. of page 6)

Reviewed on 03/11/2024

· Department issuing SDS: product safety department



Reviewed on 01/22/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Manganese</u>
- Part Number: PLMN2-2Y PLMN2-2M PLMN2-2T PLMN2-2X
- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

Product Name: 1000 µg/mL Manganese

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

Chemical identification of the substance/preparation

7732-18-5	water, distilled,	conductivity	or of similar	· purity

7439-96-5 manganese

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

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- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information. Protective Action Criteria for Chemicals

· PAC-1: 7697-37-2 nitric acid 0.16 ppm 7439-96-5 manganese 3 mg/m³ · PAC-2: 7697-37-2 nitric acid 24 ppm 7439-96-5 manganese $5 mg/m^3$ PAC-3: 7697-37-2 nitric acid 92 ppm 7439-96-5 manganese 1,800 mg/m3

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

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(Contd. of page 1)



Product Name: 1000 µg/mL Manganese

Safety Data Sheet acc. to OSHA HCS

Reviewed on 01/22/2024

(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.
- Immediately remove all solled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and	chemical properties
· General Information	
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd. on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Manganese

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		(Contd. of page 3)
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
· Density at 20 °C (68 °F)	1.01649 g/cm ³ (8.48261 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/wat	er): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	97.9 %	
VOC content:	0.00 %	
Solids content:	0.1 %	
· Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
NTP (National Toxicology Program)	
None of the ingredients is listed.	
OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Manganese

- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

UN3264		
Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)		
8 Corrosive substances 8		
8 Corrosive substances 8		
111		
Not applicable.		
Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides		
he IBC Code Not applicable.		
Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml		

Safety Data Sheet

acc. to OSHA HCS

Reviewed on 01/22/2024

(Contd. of page 4)

(Contd. on page 6)



Safety Data Sheet acc. to OSHA HCS

Reviewed on 01/22/2024

Product Name: 1000 µg/mL Manganese

(Contd.	of	page	5)
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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

· Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
7439-96-5 manganese
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
7439-96-5 manganese
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
· EPA (Environmental Protection Agency)
7439-96-5 manganese D
· TLV (Threshold Limit Value)
None of the ingredients is listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

None of the ingreatents is list

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). • Hazard pictograms



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 *Take off contaminated clothing and wash it before reuse.* P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.



Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Manganese

(Contd. of page 6)

Reviewed on 01/22/2024

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

- ADR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Instrumentory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

US —



Reviewed on 01/22/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Molybdenum</u>
- Part Number: PLMO9-2Y
 PLMO9-2M
 PLMO9-2T
 PLMO9-2X
 Application of the substance / the mixture For Laboratory Use Only
 Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet • Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA
- NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture The product is not classified, according to the Globally Harmonized System (GHS).

- · Label elements
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- Signal word Not Regulated
- \cdot Hazard statements Not Regulated
- Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)

HEALTH \bigcirc Health = 0FIRE \bigcirc Fire = 0REACTIVITY \bigcirc Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.
- · Dangerous components: Not Regulated

· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	99.9%
7439-98-7 molybdenum	0.1%

4 First-aid measures

- \cdot Description of first aid measures
- · General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Generally the product does not irritate the skin.
- After eye contact: Rinse opened eye for several minutes under running water.
- \cdot After swallowing: Do not give anything to eat or drink Do not induce vomitting



Product Name: 1000 µg/mL Molybdenum

Safety Data Sheet acc. to OSHA HCS

Reviewed on 01/22/2024

(Contd. of page 1)

30 mg/m³

330 mg/m³

2,000 mg/m3

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· Information for Doctor:

- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). • Reference to other sections
- See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

7439-98-7 molybdenum

· PAC-3:

7439-98-7 molybdenum

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special measures required.
- Follow good laboratory practices.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
- · Respiratory protection: Not required.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• *Penetration time of glove material* The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 3)

US —

Product Name: 1000 µg/mL Molybdenum

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties			
· Information on basic physical and chemical properties			
· General Information			
· Appearance: Form:	Liquid		
Form: Color:	According to product specification		
· Odor:	<i>Characteristic</i>		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
· Change in condition			
Melting point/Melting range:	Undetermined.		
Boiling point/Boiling range:	100 °C (212 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
· Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
• Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
· Density at 20 °C (68 °F)	1.00922 g/cm ³ (8.42194 lbs/gal)		
· Relative density	Not applicable.		
· Vapor density	Not applicable.		
· Evaporation rate	Not applicable.		
· Solubility in / Miscibility with			
Water:	Fully miscible.		
· Partition coefficient (n-octanol/water	· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
· Solvent content:			
Water:	99.9 % 0.00 %		
VOC content:	0.00 %		
Solids content:	0.0 %		
• Other information	No further relevant information available.		

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- · Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

Reviewed on 01/22/2024

(Contd. of page 2)

Product Name: 1000 µg/mL Molybdenum

Safety Data Sheet

acc. to OSHA HCS

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories
· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.
· NTP (National Toxicology Program)
None of the ingredients is listed.
· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

· Toxicity

- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available.}$
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes: Not hazardous for water.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- $\cdot \textit{Recommended cleansing agent: Water, if necessary with cleansing agents.}$

14 Transport information

· UN-Number · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated	
· Packing group · DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	
• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
· UN "Model Regulation":	Not Regulated	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
 Sara

· Section 313 (Specific toxic chemical listings):	
None of the ingredients is listed.	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
	(Contd. on page 5)

Reviewed on 01/22/2024

(Contd. of page 3)

· Proposition 65

Product Name: 1000 µg/mL Molybdenum

US

Reviewed on 01/22/2024

(Contd. of page 4) · Chemicals known to cause cancer: None of the ingredients is listed. Chemicals known to cause reproductive toxicity for females: None of the ingredients is listed. · Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed. · Chemicals known to cause developmental toxicity: None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency) None of the ingredients is listed. · TLV (Threshold Limit Value) 7439-98-7 molybdenum A3 · NIOSH-Ca (National Institute for Occupational Safety and Health) None of the ingredients is listed.

Safety Data Sheet

acc. to OSHA HCS

· GHS label elements Not Regulated

· Hazard pictograms Not Regulated

Signal word Not Regulated

- · Hazard statements Not Regulated
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

- · Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit



Reviewed on 02/16/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Sodium</u>
- · Part Number:

PLNA2-2Y PLNA2-2M PLNA2-2T PLNA2-2X • Application of the substance / the mixture For Laboratory Use Only

- Application of the substance / the mixture For Laboratory Use Only • Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet • Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA
- 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

Product Name: 1000 µg/mL Sodium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

Chemical identification of the substance/preparation

· Chemicai	aentification of the substance/preparation
7732-18-5	water, distilled, conductivity or of similar purity
7440-23-5	sodium

Safety Data Sheet

acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals DAC

• PAC-1:	
7697-37-2 nitric acid	0.16 ppm
7440-23-5 sodium	13 mg/m ³
• PAC-2:	
7697-37-2 nitric acid	24 ppm
7440-23-5 sodium	140 mg/m ³
• PAC-3:	
7697-37-2 nitric acid	92 ppm
7440-23-5 sodium	870 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

Reviewed on 02/16/2024

(Contd. of page 1)

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2.0%

97.9% 0.1%



Product Name: 1000 µg/mL Sodium

Reviewed on 02/16/2024

(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.
- Immediately remove all solled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin. • **Respiratory protection:** Not required.
- Respiratory protection: Not re
- Protection of hands:



The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

 Information on basic physical and General Information 	chemical properties
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd. on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Sodium

Page 4/7

Product Name: 1000 μg/mL Sodium		
		(Contd. of page 3)
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
• Density at 20 °C (68 °F)	1.01159 g/cm ³ (8.44172 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	

Water:	Fully miscible.		
· Partition coefficient (n-oct	· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity: Dynamic: Kinematic:	Not applicable. Not applicable.		
• Solvent content: Water: VOC content:	97.9 % 0.00 %		
Solids content:	0.1 %		
• Other information	No further relevant information available.		

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

• on the skin: Irritant to skin and mucous membranes.

• on the eye: Irritating effect.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

ARC (International Agency for Research on Cancer)
None of the ingredients is listed.
NTP (National Toxicology Program)
None of the ingredients is listed.
OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Sodium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 02/16/2024

(Contd. of page 4)

- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable. *vPvB:* Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
\cdot Transport in bulk according to Annex II of MARPOL73/78 an	d the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page of

Page 6/7

Product Name: 1000 µg/mL Sodium

(Contd.	of page 5)
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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara	
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).	
· Hazard pictograms	



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other inform<u>ation</u>

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

us —

Safety Data Sheet acc. to OSHA HCS

Product Name: 1000 µg/mL Sodium

· Department issuing SDS: product safety department · Contact: Spex CertiPrep, LLC. 1-732-549-7144 · Date of preparation / last revision 03/11/2024 · Abbreviations and acronyms: ADDR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LCS0: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic PB1: Persistent, Bioaccumulative and Toxic vpvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit

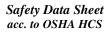
- REL: Recommended Exposure Limit Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

(Contd. of page 6)

Reviewed on 02/16/2024

certiprep Printing date 03/11/2024





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1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Niobium</u>
- · Part Number:
- PLNB9-2Y
- PLNB9-2M PLNB9-2X
- · Application of the substance / the mixture For Laboratory Use Only · Uses advised against Not for Human or Animal Use
- · Details of the supplier of the safety data sheet
- · Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com
- · Information department: product safety department · Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Acute Toxicity - Dermal 4 H312 Harmful in contact with skin.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

Signal word wa	ining the second s
• Hazard-determi hydrofluoric aci	ning components of labeling: d
· Hazard statemen	nts
H312 Harmful ir	n contact with skin.
H319 Causes set	rious eye irritation.
· Precautionary st	tatements
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	If on skin: Wash with plenty of water.
P305+P351+P3	38 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P362+P364	Take off contaminated clothing and wash it before reuse.
P337+P313	If eye irritation persists: Get medical advice/attention.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
· Classification sy	ustem:
· NFPA ratings (s	scale 0 - 4)

Health = 2Fire = 0Reactivity = 0

(Contd. on page 2)



Product Name: 1000 µg/mL Niobium

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:		
7664-39-3 hydrofluoric acid		
· Chemical identification of the substance/preparation		
7732-18-5 water, distilled, conductivity or of similar purity	99.46%	
1313-96-8 diniobium pentaoxide	0.14%	

4 First-aid measures

· Description of first aid measures

· General information:

- Immediately remove any clothing soiled by the product.
- Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

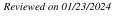
- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- Dispose contaminated material as waste according to section 13.
- Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information. Protective Action Criteria for Chemicals

· PAC-1:	
7664-39-3 hydrofluoric acid	1.0 ppm
1313-96-8 diniobium pentaoxide	6.6 mg/m^3
· PAC-2:	
7664-39-3 hydrofluoric acid	24 ppm
1313-96-8 diniobium pentaoxide	72 mg/m ³
· PAC-3:	
7664-39-3 hydrofluoric acid	44 ppm
	(Contd. on page 3)
	US —

Safety Data Sheet acc. to OSHA HCS



(Contd. of page 1)

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Product Name: 1000 µg/mL Niobium

1313-96-8 diniobium pentaoxide

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see section 7.

· Control parameters · Components with limit values that require monitoring at the workplace: 7664-39-3 hydrofluoric acid PEL Long-term value: 1* mg/m³, 3 ppm as F, *sulfuric acid REL Long-term value: 2.5 mg/m³, 3 ppm Ceiling limit value: 5* mg/m³, 6* ppm *15-min, as F TLV Long-term value: 0.5 ppm Ceiling limit value: 2 ppm as F; Skin, BEI · Ingredients with biological limit values: 7664-39-3 hydrofluoric acid BEI 3 mg/g creatinine Medium: urine Time: prior to shift Parameter: Fluorides (background, nonspecific) 10 mg/g creatinine Medium: urine Time: end of shift Parameter: Fluorides (background, nonspecific)

Safety Data Sheet acc. to OSHA HCS

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- Protection of hands:



The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Reviewed on 01/23/2024

(Contd. of page 2)

430 mg/m³

Product Name: 1000 µg/mL Niobium

· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties		
· Information on basic physical and chemical properties		
· General Information		
· Appearance: Form:	Liquid	
Color:	According to product specification	
· Odor:	Characteristic	
· Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
· Change in condition		
Melting point/Melting range:		
Boiling point/Boiling range:	100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
• Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
• Danger of explosion:	Product does not present an explosion hazard.	
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
• Density at 20 °C (68 °F)	1.00357 g/cm ³ (8.37479 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity:		
Dynamic: Kinematic:	Not applicable. Not applicable.	
	ινοι αρμιτασιε.	
· Solvent content:	00.5 0	
Water: VOC content:	99.5 % 0.00 %	
	0.0 %	
Solids content:		
• Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions No dangerous reactions known.

• Conditions to avoid No further relevant information available.

· Incompatible materials: No further relevant information available.

· Hazardous decomposition products: No dangerous decomposition products known.

(Contd. on page 5)

Reviewed on 01/23/2024

(Contd. of page 3)

Product Name: 1000 µg/mL Niobium

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(Contd. of page 4)

Information on toxicological effects	
Acute toxicity:	
LD/LC50 values that are relevant for cl	ssification:
7664-39-3 hydrofluoric acid	
Oral LD50 1,276 mg/kg (rat)	
Primary irritant effect: on the eye: Irritating effect. Sensitization: No sensitizing effects know Additional toxicological information: The product shows the following danger Harmful Irritant	n. according to internally approved calculation methods for preparations:
Carcinogenic categories	
IARC (International Agency for Resear	h on Cancer)
None of the ingredients is listed.	
NTP (National Toxicology Program)	
None of the ingredients is listed.	
OSHA-Ca (Occupational Safety & Heal	h Administration)
None of the ingredients is listed.	

· Toxicity

- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.
- 13 Disposal considerations
- \cdot Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA		
· Class	Not Regulated	
· Packing group		
· DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	

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Reviewed on 01/23/2024

Product Name: 1000 µg/mL Niobium

(Contd. of page 5)

	• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.
1	

· UN "Model Regulation":

Not Regulated

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
· Sara
Section 313 (Specific toxic chemical listings):
7664-39-3 hydrofluoric acid
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
7664-39-3 hydrofluoric acid
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
· EPA (Environmental Protection Agency)
None of the ingredients is listed.

· TLV (Threshold Limit Value) None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



· Signal word Warning

· Hazard-determining components of labeling:

hydrofluoric acid

· Hazard statements

H312 Harmful in contact with skin.

H319 Causes serious eye irritation.

· Precautionary statements

P264 Wash thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302 + P352If on skin: Wash with plenty of water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a poison center/doctor if you feel unwell. P321 Specific treatment (see on this label).

P362+P364

Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention.

Dispose of contents/container in accordance with local/regional/national/international regulations. P501

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

Reviewed on 01/23/2024

Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Niobium

	(Contd. of page 6
Contact:	
Spex CertiPrep, LLC.	
1-732-549-7144	
Date of preparation / last revision 03/11/2024	
Abbreviations and acronyms:	
ADDR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)	
ADX. Accord retuit at ransport international acs marchanases adapteness par route (European Agreement Concerning ine international Curriage of Dangerous Goods by Koda) IDDG: International Aminime Code for Dangerous Goods	
InfO: International Martina Code for Dangerous Goods DOT: US Department of Transportation	
LarA: International Air Transport Association	
EINECS: European Investory of Existing Commercial Chemical Substances	
ELINCS: European List of Notified Chemical Substances	
CAS: Chemical Abstracts Service (division of the American Chemical Society)	
NFPA: National Fire Protection Association (USA)	
HMIS: Hazardous Materials Identification System (USA)	
VOC: Volatile Organic Compounds (USA, EU)	
LC50: Lethal concentration, 50 percent	
LD50: Lethal dose, 50 percent	
PBT: Persistent, Bioaccumulative and Toxic	
vPvB: very Persistent and very Bioaccumulative	
NIOSH: National Institute for Occupational Safety	
OSHA: Occupational Safety & Health	
TLV: Threshold Limit Value	
PEL: Permissible Exposure Limit	
REL: Recommended Exposure Limit	
BEI: Biological Exposure Limit	
Acute Toxicity - Dermal 4: Acute toxicity – Category 4 Eye Irritation 2A: Serious eye damageleye irritation – Category 2A	
Lye Irrhanon 2A. Serious eye aumagereye irrhanon – Calegory 2A	US -



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Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Nickel</u>
- Part Number: PLNI2-2Y

PLNI2-21 PLNI2-2M PLNI2-2T PLNI2-2X Annifection of the substance / the mixture Fou

- Application of the substance / the mixture For Laboratory Use Only
- Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier: Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen, NJ 08840 USA
 732-549-7144
- $USMet\-CRMSales@antylia.com$

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Carcinogenicity 2 H351 Suspected of causing cancer. Route of exposure: Inhalation.



Skin Irritation 2 H315 Causes skin irritation.

Eye Irritation 2A H319 Causes serious eye irritation.

Sensitization - Skin 1 H317 May cause an allergic skin reaction.

- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



- · Signal word Warning
- · Hazard-determining components of labeling:

nickel

- · Hazard statements
- H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer. Route of exposure: Inhalation.

· Precautionary statements

- P201 Obtain special instructions before use.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray
- P264 Wash thoroughly after handling.
- P272 Contaminated work clothing must not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 If on skin: Wash with plenty of water.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313IF exposed or concerned: Get medical advice/attention.P321Specific treatment (see on this label).
- P362+P364 Take off contaminated clothing and wash it before reuse.

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024



Printing date 03/11/2024

P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
· Classification s	vstem:

· NFPA ratings (scale 0 - 4)



Health = 2Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)



· Other hazards

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

• Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:		
7697-37-2 nitric acid	2.0%	
7440-02-0 nickel	0.1%	
· Chemical identification of the substance/preparation		
7732-18-5water, distilled, conductivity or of similar purity97.		

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation:
- Supply fresh air and to be sure call for a doctor.
- In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- \cdot Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to section 13. Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

Product Name: 1000 µg/mL Nickel

(Contd. of page 2)

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See Section 8 for information on personal protection equipment. See Section 13 for disposal information. • **Protective Action Criteria for Chemicals**

• PAC-1:	
7697-37-2 nitric acid	0.16 ppm
7440-02-0 nickel	$4.5 mg/m^3$
· PAC-2:	
7697-37-2 nitric acid	24 ppm
7440-02-0 nickel	50 mg/m ³
• PAC-3:	
7697-37-2 nitric acid	92 ppm
7440-02-0 nickel	99 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling

- Ensure good ventilation/exhaustion at the workplace.
- $Open \ and \ handle \ receptacle \ with \ care.$
- Prevent formation of aerosols.

· Information about protection against explosions and fires: Keep respiratory protective device available.

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see section 7.

· Control parameters

· Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the remaining constituent has no known exposure limits.

7440-02-0 nickel

- PEL Long-term value: 1 mg/m³
- REL Long-term value: 0.015 mg/m³ as Ni; See Pocket Guide App. A
 - as Ni; see Pockei Guide App

TLV Long-term value: 1.5* mg/m³ elemental, *inhalable fraction, A5, BEI

· Ingredients with biological limit values:

7440-02-0 nickel

 BEI 5 μg/L Medium: urine Time: post-shift at end of workweek Parameter: Nickel (background)
 30 μg/L Medium: urine Time: post-shift at end of workweek

Parameter: Nickel (background)

• Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

Reviewed on 03/11/2024

Product Name: 1000 µg/mL Nickel

Printing date 03/11/2024

(Contd. of page 3)

· Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- Material of gloves
- The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- *Penetration time of glove material* The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • *Eye protection:*



Tightly sealed goggles

9 Physical and chemical properties

9 Physical and chemical properties			
· Information on basic physical and c · General Information · Appearance:	hemical properties		
Form:	Liquid		
Color:	According to product specification		
· Odor:	Characteristic		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
· Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
• Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
• Density at 20 °C (68 °F)	1.01797 g/cm ³ (8.49496 lbs/gal)		
· Relative density	Not applicable.		
· Vapor density	Not applicable.		
· Evaporation rate	Not applicable.		
· Solubility in / Miscibility with			
Water:	Fully miscible.		
· Partition coefficient (n-octanol/wate	· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
· Solvent content:			
Water:	97.9 %		
VOC content:	0.00 %		
Solids content:	0.1 %		
	(Contd. on page 5		

Product Name: 1000 µg/mL Nickel

• Other information

No further relevant information available.

Safety Data Sheet

acc. to OSHA HCS

Reviewed on 03/11/2024

(Contd. of page 4)

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10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: Sensitization possible through skin contact.
- · Additional toxicological information:
- The product shows the following dangers according to internally approved calculation methods for preparations:
- Irritant

· Carcinogenic categories

6 6	
· IARC (International Agency for Research on Cancer)	
7440-02-0 nickel	2B
· NTP (National Toxicology Program)	
7440-02-0 nickel	R
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

(Contd. on page 6)

(Contd. of page 5)

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14 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
 UN proper shipping name DOT ADR IMDG, IATA 	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
- DOT	8 Corrosive substances
·Label	8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	III
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC (Code Not applicable.
 Transport/Additional information: ADR Excepted quantities (EQ) 	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
• IMDG • Limited quantities (LQ) • Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

— US —

A5

Printing date 03/11/2024

Product Name: 1000 µg/mL Nickel

Reviewed on 03/11/2024

(Contd. of page 6)

Proposition 65	• 1	Prop	osition	65
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· roposition 05	
· Chemicals known to cause cancer:	
7440-02-0 nickel	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	

7440-02-0 nickel

· NIOSH-Ca (National Institute for Occupational Safety and Health)

7440-02-0 nickel

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



· Signal word Warning

- · Hazard-determining components of labeling:
- nickel
- · Hazard statements H315 Causes skin irritation.
- H319 Causes serious eve irritation.
- H317 May cause an allergic skin reaction.
- H351 Suspected of causing cancer. Route of exposure: Inhalation.
- · Precautionary statements
- P201 Obtain special instructions before use. Avoid breathing dust/fume/gas/mist/vapors/spray
- P261 P264 Wash thoroughly after handling.
- P272
- Contaminated work clothing must not be allowed out of the workplace. P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 If on skin: Wash with plenty of water.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P321 Specific treatment (see on this label).
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: product safety department
- · Contact:
- Spex CertiPrep, LLC. 1-732-549-7144
- · Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

- IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

Safety Data Sheet acc. to OSHA HCS

Certiprep
Printing date 03/11/2024

S

Product Name: 1000 µg/mL Nickel

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal concentration, 50 percent PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REI: Biological Exposure Limit BEI: Biological Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation - Skin 1: Skin sensitisation – Category 1 Carcinogenicity 2: Carcinogenicity – Category 2 Reviewed on 03/11/2024

(Contd. of page 7)

US -



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Reviewed on 02/14/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Phosphorus</u>
- · Part Number:
- PLP9-2Y PLP9-2M
- PLP9-2T
- PLP9-2X
- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet • Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA
- 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

• Emergency telephone number:

Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture The product is not classified, according to the Globally Harmonized System (GHS).

- · Label elements
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)

HEALTH \bigcirc Health = 0FIRE \bigcirc Fire = 0REACTIVITY \bigcirc Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components: Not Regulated

· Chemical identification of the substance/preparation		
7732-18-	5 water, distilled, conductivity or of similar purity	99.63%
7722-76-	1 ammonium dihydrogenorthophosphate	0.37%

4 First-aid measures

- \cdot Description of first aid measures
- · General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Generally the product does not irritate the skin.
- After eye contact: Rinse opened eye for several minutes under running water.
- $\cdot \textit{After swallowing:} Do not give anything to eat or drink Do not induce vomitting$



Product Name: 1000 µg/mL Phosphorus

Reviewed on 02/14/2024

(Contd. of page 1)

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- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). • Reference to other sections
- See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information. • Protective Action Criteria for Chemicals

· PAC-1:

· / AC-1.	
7722-76-1 ammonium dihydrogenorthophosphate	17 mg/m ³
• PAC-2:	
7722-76-1 ammonium dihydrogenorthophosphate	190 mg/m ³
• PAC-3:	
7722-76-1 ammonium dihydrogenorthophosphate	$1,100 \text{ mg/m}^3$

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special measures required.
- Follow good laboratory practices.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
- · Respiratory protection: Not required.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• *Penetration time of glove material* The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 3)

- US —

Product Name: 1000 µg/mL Phosphorus

0 Physical and chamical propertie

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties		
· Information on basic physical and c · General Information · Appearance:	hemical properties	
Form:	Liquid	
Color:	According to product specification	
· Odor:	Characteristic	
· Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
• Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
• Danger of explosion:	Product does not present an explosion hazard.	
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
• Density at 20 °C (68 °F)	1.00037 g/cm ³ (8.34809 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:	00 <i>C d</i>	
Water:	99.6 % 0.00 %	
VOC content:		
Solids content:	0.4 %	
· Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- \cdot Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- Additional toxicological information:

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(Contd. of page 2)

Product Name: 1000 µg/mL Phosphorus

Safety Data Sheet acc. to OSHA HCS

(Contd. of page 3)

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When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories		
· IARC (International Agency for Research on Cancer)		
None of the ingredients is listed.		
· NTP (National Toxicology Program)		
None of the ingredients is listed.		
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

12 Ecological information

· Toxicity

- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available.}$
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes: Not hazardous for water.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- $\cdot \textit{Recommended cleansing agent: Water, if necessary with cleansing agents.}$

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated	
· Packing group · DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
· UN "Model Regulation":	Not Regulated	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
 Sara

· Section 313 (Specific toxic chemical listings):	
None of the ingredients is listed.	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
	(Contd on page 5)

Product Name: 1000 µg/mL Phosphorus

(Contd. of page 4)

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us —

Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
· EPA (Environmental Protection Agency)
None of the ingredients is listed.

Safety Data Sheet

acc. to OSHA HCS

· TLV (Threshold Limit Value)

- None of the ingredients is listed.
- · NIOSH-Ca (National Institute for Occupational Safety and Health)
- None of the ingredients is listed.
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.
- 1-732-549-7144
- · Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- IMDDs: International Martume Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: Chemical Abstracts Service (division of the American Chemical Society) NEDA (Microal Even Department)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: 1000 µg/mL Lead
- · Part Number:

PLPB2-2Y PLPB2-2M PLPB2-2T PLPB2-2X · Application of the substance / the mixture For Laboratory Use Only

- · Uses advised against Not for Human or Animal Use
- · Details of the supplier of the safety data sheet · Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

· Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Carcinogenicity 2 H351 Suspected of causing cancer. Toxic to Reproduction 1A H360 May damage fertility or the unborn child.



Skin Irritation 2 Eye Irritation 2A H315 Causes skin irritation. H319 Causes serious eye irritation.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



- · Signal word Danger
- · Hazard-determining components of labeling:

lead

- · Hazard statements
- H315 Causes skin irritation. H319 Causes serious eye irritation.
- H351 Suspected of causing cancer.
- H360 May damage fertility or the unborn child.

	11500 may aumage	ferning of the unborn entity.	
•	Precautionary state	Precautionary statements	
	P201	Obtain special instructions before use.	
	P202	Do not handle until all safety precautions have been read and understood.	
	P264	Wash thoroughly after handling.	
	P280	Wear protective gloves/protective clothing/eye protection/face protection.	
	P302+P352	If on skin: Wash with plenty of water.	
	P305 + P351 + P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
	P308+P313	IF exposed or concerned: Get medical advice/attention.	
	P321	Specific treatment (see on this label).	
	P362+P364	Take off contaminated clothing and wash it before reuse.	
	P332+P313	If skin irritation occurs: Get medical advice/attention.	

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

certiprep

Product Name: 1000 µg/mL Lead

(Contd. of page 1)

 P337+P313
 If eye irritation persists: Get medical advice/attention.

 P405
 Store locked up.

 P501
 Dispose of contents/container in accordance with local/regional/national/international regulations.

 • Classification system:
 • NFPA ratings (scale 0 - 4)



· HMIS-ratings (scale 0 - 4)

HEALTH2FIRE0Fire = 0REACTIVITY0

· Other hazards

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:			
7697-37-2 nitric acid	2.0%		
7439-92-1 lead	0.1%		
· Chemical identification of the substance/preparation			
7732-18-5 water, distilled, conductivity or of similar purity	97.9%		

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to section 13.

· Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

Product Name: 1000 µg/mL Lead

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(Contd. of page 2)

0.16 ppm
0.15 mg/m ³
24 ppm
120 mg/m ³
92 ppm
700 mg/m ³

7 Handling and storage

· Handling:

- · Precautions for safe handling Open and handle receptacle with care.
- Information about protection against explosions and fires: Keep respiratory protective device available.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see section 7.
- Control parameters
 Components with limit values that require monitoring at the workplace:

	e following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. this time, the remaining constituent has no known exposure limits.				
7439	-92-1 lead				
PEL	PEL Long-term value: 0.05* mg/m³ *see 29 CFR 1910.1025				
REL	Long-term value: 0.05* mg/m ³ *8-hr TWA ;See PocketGuide App.C				
TLV	Long-term value: 0.05* mg/m ³ *and inorganic compds., as Pb; BEI, A3				
· Ingr	Ingredients with biological limit values:				
7439	7439-92-1 lead				
	BEI 200 μg/L				
	Medium: blood				
	Time: not critical				
	Parameter: Lead				
• Addi	tional information: The lists that were valid during the creation were used as basis.				

· Exposure controls

- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- · Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Product Name: 1000 µg/mL Lead

(Contd. of page 3)

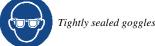
Reviewed on 03/11/2024

· Material of gloves

certiprep

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



9 Physical and chemical properties

Information on basic physical and chemical properties			
· General Information · Appearance:			
· Appearance: Form:	Liquid		
Color:	According to product specification		
· Odor:	Characteristic		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
· Change in condition			
Melting point/Melting range:	Undetermined.		
Boiling point/Boiling range:	100 °C (212 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
• Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
• Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
\cdot Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
· Density at 20 °C (68 °F)	1.01859 g/cm ³ (8.50013 lbs/gal)		
• Relative density Not applicable.			
· Vapor density	Not applicable.		
• Evaporation rate	Not applicable.		
· Solubility in / Miscibility with			
Water:	Fully miscible.		
· Partition coefficient (n-octanol/water): Not applicable.			
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
· Solvent content:			
Water:	97.9 %		
VOC content:	0.00 %		
Solids content:	0.1 %		
· Other information	Other information No further relevant information available.		

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions No dangerous reactions known.

• Conditions to avoid No further relevant information available.

- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

Product Name: 1000 µg/mL Lead

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Safety Data Sheet

acc. to OSHA HCS

Irritant

Product is suspected to cause damage to fertility. Product is suspected to cause birth defects.

Carcinogenic categories

· IARC (International Agency for Research on Cancer)

7439-92-1 lead

· NTP (National Toxicology Program)

7439-92-1 lead

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name	
$\cdot DOT$	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
·ADR	3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· IMDG, IATA	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
	(Contd. on page 6

(Contd. of page 4)

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2B

R

US -

Safety Data Sheet acc. to OSHA HCS

Certiprep
Printing date 03/11/2024

Product Name: 1000 µg/mL Lead

Reviewed on 03/11/2024

	(Contd. of page
· Transport hazard class(es)	
·DOT	
CORROSIVE 0	
· Class	8 Corrosive substances
· Label	8
· ADR, IMDG, IATA	
· Class	8 Corrosive substances
· Label	8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
\cdot Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
7439-92-1 lead	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
7439-92-1 lead	
Proposition 65	
· Chemicals known to cause cancer:	
7439-92-1 lead	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
	(Contd. on page 7)

Product Name: 1000 µg/mL Lead

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B2

A3

	(Contd. of page 6)
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	

Carcinogenic categories

· EPA (Envi	ronmental Protection Agency)
7439-92-1	lead
• TLV (Thre	shold Limit Value)

7439-92-1 lead

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



· Signal word Danger

- · Hazard-determining components of labeling:
- lead
- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H351 Suspected of causing cancer.

H360 May damage fertility or the unborn child.

- Precautionary statements
- P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P264 Wash thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection. P302+P352 If on skin: Wash with plenty of water. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 IF exposed or concerned: Get medical advice/attention. Specific treatment (see on this label). P321 P362+P364 Take off contaminated clothing and wash it before reuse. P332+P313 If skin irritation occurs: Get medical advice/attention. P337+P313 If eye irritation persists: Get medical advice/attention. P405 Store locked up. P501 Dispose of contents/container in accordance with local/regional/national/international regulations. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.
- 1-732-549-7144
- Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation
- IATA: International Air Transport Association
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit BEI: Biological Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2

— US —

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

(Contd. of page 7)

Product Name: 1000 µg/mL Lead

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A Carcinogenicity 2: Carcinogenicity – Category 2 Toxic to Reproduction 1A: Reproductive toxicity – Category 1A





Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Sulfur</u>
- · Part Number:

PLS9-2Y PLS9-2M PLS9-2T

PLS9-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier: Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,

NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

• Emergency telephone number:

Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture The product is not classified, according to the Globally Harmonized System (GHS).

- · Label elements
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- Signal word Not Regulated
- \cdot Hazard statements Not Regulated
- · Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)

HEALTH0Health = 0FIRE0Fire = 0REACTIVITY0Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components: Not Regulated

· Chemical identification of the substance/preparation		
7732-18-5 water, distilled, conductivity or of similar purity	99.59%	
7783-20-2 sulfur from ammonium sulphate	0.41%	

4 First-aid measures

- \cdot Description of first aid measures
- · General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Generally the product does not irritate the skin.
- After eye contact: Rinse opened eye for several minutes under running water.
- \cdot After swallowing: Do not give anything to eat or drink Do not induce vomitting



Product Name: 1000 µg/mL Sulfur

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

- Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). · Reference to other sections
- See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

•	ľ	A	 -	1.	

7783-20-2 sulfur from ammonium sulphate

· PAC-2

7783-20-2 sulfur from ammonium sulphate

· PAC-3:

7783-20-2 sulfur from ammonium sulphate

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special measures required.
- Follow good laboratory practices.
- Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
- · Respiratory protection: Not required.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 3)

US —

13 mg/m³

140 mg/m³

840 mg/m3

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Product Name: 1000 µg/mL Sulfur

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties					
	· Information on basic physical and chemical properties				
· General Information · Appearance:					
· Appearance: Form:	Liquid				
Color:	According to product specification				
· Odor:	Characteristic				
· Odour Threshold:	Not applicable.				
· pH-value:	Not applicable.				
· Change in condition					
Melting point/Melting range:	Undetermined.				
Boiling point/Boiling range:	100 °C (212 °F)				
· Flash point:	Not applicable.				
· Flammability (solid, gaseous):	Not applicable.				
· Decomposition temperature:	Not applicable.				
· Ignition temperature:	Product is not selfigniting.				
• Danger of explosion: Product does not present an explosion hazard.					
· Explosion limits:					
Lower:	Not applicable.				
Upper:	Not applicable.				
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)				
• Density at 20 °C (68 °F)	1.00082 g/cm ³ (8.35184 lbs/gal)				
· Relative density	Not applicable.				
· Vapor density	Not applicable.				
· Evaporation rate	Not applicable.				
· Solubility in / Miscibility with					
Water:	Fully miscible.				
· Partition coefficient (n-octanol/water): Not applicable.					
· Viscosity:					
Dynamic:	Not applicable.				
Kinematic:	Not applicable.				
· Solvent content:					
Water:	99.6 % 0.00 %				
VOC content:					
Solids content:	0.4 %				
• Other information	No further relevant information available.				

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- · Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

Reviewed on 03/11/2024

(Contd. of page 2)

Product Name: 1000 µg/mL Sulfur

Safety Data Sheet acc. to OSHA HCS

(Contd. of page 3)

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When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories	
· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
·NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

· Toxicity

- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available.}$
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- \cdot General notes: Not hazardous for water.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- $\cdot \textit{Recommended cleansing agent: Water, if necessary with cleansing agents.}$

14 Transport information

· UN-Number · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated	
· Packing group · DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	
• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
· UN "Model Regulation":	Not Regulated	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
 Sara

Section 313 (Specific toxic chemical listings):
 7783-20-2 sulfur from ammonium sulphate
 TSCA (Toxic Substances Control Act):
 All components have the value ACTIVE.
 Hazardous Air Pollutants
 None of the ingredients is listed.
 (Contd. on page 5)

Product Name: 1000 µg/mL Sulfur

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us —

	(Contd. of page 4)
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	

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acc. to OSHA HCS

· TLV (Threshold Limit Value)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements Not Regulated

· Hazard pictograms Not Regulated

- Signal word Not Regulated
- · Hazard statements Not Regulated
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: product safety department
- · Contact:
- Spex CertiPrep, LLC.

1-732-549-7144

- · Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- IMDDs: International Martume Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: Chemical Abstracts Service (division of the American Chemical Society) NEDA (Microal Even Department)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit



Reviewed on 01/16/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Antimony</u>
- · Part Number:

PLSB7-2Y PLSB7-2M PLSB7-2T PLSB7-2X • Application of the substance / the mixture For Laboratory Use Only • Uses advised against Not for Human or Animal Use

• Details of the supplier of the safety data sheet • Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen,

NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

• Emergency telephone number:

Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture The product is not classified, according to the Globally Harmonized System (GHS).

- · Label elements
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- · Signal word Not Regulated
- · Hazard statements Not Regulated
- Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)

HEALTH \bigcirc Health = 0FIRE \bigcirc Fire = 0REACTIVITY \bigcirc Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:	
7697-37-2 nitric acid	<0.9%
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	98.4%
87-69-4 (+)-tartaric acid	0.6%
7440-36-0 antimony	0.1%

4 First-aid measures

- · Description of first aid measures
- · General information: No special measures required.

• After inhalation: Supply fresh air; consult doctor in case of complaints.

• After skin contact: Generally the product does not irritate the skin.

Product Name: 1000 µg/mL Antimony

- After eye contact: Rinse opened eye for several minutes under running water.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- Information for Doctor:
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Safety Data Sheet acc. to OSHA HCS

- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.
- Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
87-69-4 (+)-tartaric acid	1.6 mg/m ³
7440-36-0 antimony	1.5 mg/m ³
· PAC-2:	
7697-37-2 nitric acid	24 ppm
87-69-4 (+)-tartaric acid	17 mg/m ³
7440-36-0 antimony	13 mg/m ³
· PAC-3:	
7697-37-2 nitric acid	92 ppm
87-69-4 (+)-tartaric acid	100 mg/m ³
7440-36-0 antimony	80 mg/m ³

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special measures required.
- Follow good laboratory practices.
- · Information about protection against explosions and fires: No special measures required.

· Conditions for safe storage, including any incompatibilities

- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
- · Respiratory protection: Not required.

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(Contd. of page 1)

Product Name: 1000 µg/mL Antimony

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Safety Data Sheet acc. to OSHA HCS

Reviewed on 01/16/2024

· Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties

	Information on basic physical and chemical properties	
General Information		
· Appearance:		
Form:		
Color: • Odor:	According to product specification Characteristic	
• Odour: • Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
• Change in condition Melting point/Melting range:	Undetermined.	
Boiling point/Boiling range:	100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
· Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
• Danger of explosion:	Product does not present an explosion hazard.	
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
· Density at 20 °C (68 °F)	1.01052 g/cm ³ (8.43279 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/water)	Partition coefficient (n-octanol/water): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	98.4 %	
VOC content:	0.00 %	
Solids content:	0.7 %	
• Other information	No further relevant information available.	

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

Product Name: 1000 µg/mL Antimony

11 Toxicological information

· Information on toxicological effects

• Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

• on the skin: No irritant effect.

• on the eye: No irritating effect.

• Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- *Persistence and degradability* No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

1. 1. unsport injornation		
· UN-Number · DOT, ADR, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated	
· Packing group · DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	

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Reviewed on 01/16/2024

(Contd. of page 3)

Safety Data Sheet acc. to OSHA HCS

(Contd. of page 4)

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Reviewed on 01/16/2024

Product Name: 1000 µg/mL Antimony

· Special precautions for user	Not applicable.	
• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
· UN "Model Regulation":	Not Regulated	

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. · Sara · Section 313 (Specific toxic chemical listings): 7697-37-2 nitric acid 7440-36-0 antimony · TSCA (Toxic Substances Control Act): All components have the value ACTIVE. · Hazardous Air Pollutants None of the ingredients is listed. Proposition 65 · Chemicals known to cause cancer: None of the ingredients is listed. Chemicals known to cause reproductive toxicity for females: None of the ingredients is listed. Chemicals known to cause reproductive toxicity for males: None of the ingredients is listed. · Chemicals known to cause developmental toxicity: None of the ingredients is listed. · Carcinogenic categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed. · TLV (Threshold Limit Value)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

GHS label elements Not Regulated

· Hazard pictograms Not Regulated

· Signal word Not Regulated

· Hazard statements Not Regulated

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

Contact:

Spex CertiPrep, LLC. 1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substance.

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health TLV: Threshold Limit Value

PEL: Permissible Exposure Limit REL: Recommended Exposure Limit

US



Reviewed on 01/23/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Scandium</u>
- · Part Number:

PLSC2-2Y PLSC2-2M PLSC2-2T PLSC2-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300)

Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY 0		Reactivity = 0

Product Name: 1000 µg/mL Scandium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7607 37 2 nitric acid

7077-57-2 mint acia	2.0 %
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	97.85%
12060-08-1 scandium oxide	0.15%

Safety Data Sheet acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals DAC

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
12060-08-1 scandium oxide	30 mg/m ³
· PAC-2:	
7697-37-2 nitric acid	24 ppm
12060-08-1 scandium oxide	330 mg/m ³
· PAC-3:	
7697-37-2 nitric acid	92 ppm
12060-08-1 scandium oxide	2,000 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

Reviewed on 01/23/2024

(Contd. of page 1)

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2 00%



Product Name: 1000 µg/mL Scandium

Reviewed on 01/23/2024

(Contd. of page 2)

- \cdot Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- \cdot Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- \cdot General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- **Respiratory protection:** Not required.
- · Protection of hands:



The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· · ·		
· Information on basic physical and chemical properties		
• General Information		
· Appearance:		
Form:	Liquid	
Color:	According to product specification	
· Odor:	Characteristic	
· Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
· Change in condition		
Melting point/Melting range:	Undetermined.	
Boiling point/Boiling range:	100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
· Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
· Danger of explosion:	Product does not present an explosion hazard.	
	(Contd on page 4)	

(Contd. on page 4)

Product Name: 1000 µg/mL Scandium

	(Contd. of page 3
· Explosion limits:	
Lower: Upper:	Not applicable. Not applicable.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
• Density at 20 °C (68 °F)	1.00906 g/cm ³ (8.42061 lbs/gal)
Relative density	Not applicable.
• Vapor density • Evaporation rate	Not applicable. Not applicable.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/wate	r): Not applicable.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Water:	97.9 %
VOC content:	0.00 %
Solids content:	0.0 %
• Other information	No further relevant information available.

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
·NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.

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Product Name: 1000 µg/mL Scandium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 01/23/2024

(Contd. of page 4)

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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page 6

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Product Name: 1000 µg/mL Scandium

(Contd.	of	page	5)
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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara	
Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
• TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
• GHS label elements The product is classified and labeled according to the Globally Harmonized System (G	GHS).
· Hazard pictograms	



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

us —

Safety Data Sheet acc. to OSHA HCS

Printing date 03/11/2024

Product Name: 1000 µg/mL Scandium

· Department issuing SDS: product safety department · Contact: Spex CertiPrep, LLC. 1-732-549-7144 · Date of preparation / last revision 03/11/2024 · Abbreviations and acronyms: ADDR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association (Contd. of page 6)

Reviewed on 01/23/2024

EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LCS0: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic PB1: Persistent, Bioaccumulative and Toxic vpvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A





Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Selenium</u>
- · Part Number:

PLSE2-2Y PLSE2-2M PLSE2-2T PLSE2-2X PLSE2-2X

- $\cdot \textit{Application of the substance / the mixture For Laboratory Use Only}$
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

Product Name: 1000 µg/mL Selenium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

7782-49-2 selenium

· Chemical identification of the substance/preparation

7732-18-5 water, distilled, conductivity or of similar purity

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals DAC

· PAC-1:		
7697-37-2		0.16 ppm
7782-49-2	selenium	$0.6 mg/m^3$
· PAC-2:		
7697-37-2		24 ppm
7782-49-2	selenium	6.6 mg/m ³
· PAC-3:		
7697-37-2		92 ppm
7782-49-2	selenium	40 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

Reviewed on 03/11/2024

(Contd. of page 1)

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2.0% 0.1%

97.9%



Safety Data Sheet

acc. to OSHA HCS



Product Name: 1000 µg/mL Selenium

Reviewed on 03/11/2024

(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see section 7.

· Control parameters

- Components with limit values that require monitoring at the workplace:
- The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the remaining constituent has no known exposure limits.

Safety Data Sheet acc. to OSHA HCS

	-			
7782-49-2 selenium				
PEL	Long-term value: 0.2 mg/m ³ as Se			
REL	Long-term value: 0.2 mg/m^3 as Se			
TI V	as Se			

 $\begin{array}{c|c} TLV & Long-term value: 0.2 mg/m^3 \\ as Se \end{array}$

· Additional information: The lists that were valid during the creation were used as basis.

- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- · Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties · General Information		
· Appearance:		
Form:	Liquid	
Color:	According to product specification	
· Odor:	Characteristic	
· Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
• Change in condition Melting point/Melting range:	Undetermined.	

(Contd. on page 4)

Product Name: 1000 µg/mL Selenium

		(Contd. of page 3)
Boiling point/Boiling range:	100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
· Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
· Danger of explosion:	Product does not present an explosion hazard.	
· Explosion limits: Lower: Upper:	Not applicable. Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
 Density at 20 °C (68 °F) Relative density Vapor density Evaporation rate 	1.01385 g/cm ³ (8.46058 lbs/gal) Not applicable. Not applicable. Not applicable.	
· Solubility in / Miscibility with Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	e r): Not applicable.	
Viscosity: Dynamic: Kinematic:	Not applicable. Not applicable.	
· Solvent content: Water: VOC content:	97.9 % 0.00 %	
Solids content:	0.1 %	
· Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50	values	that are	relevant	for	classific	ation:
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7697-37-2 nitric acid

- Inhalative LC50/4 h 2.65 mg/l (ATE)
- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- Sensitization: No sensitizing effects known.
- · Additional toxicological information:
- The product shows the following dangers according to internally approved calculation methods for preparations:

· Carcinogenic categories

Irritant

· IARC (International Agency for Research on Cancer)	
7782-49-2 selenium	3
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	
	(Contd. on page 5)
	US



Product Name: 1000 µg/mL Selenium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

(Contd. of page 4)

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

UN-Number DOT, ADR, IMDG, IATA	UN3264
UN proper shipping name DOT ADR IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
Transport hazard class(es)	
DOT	
Class Label	8 Corrosive substances 8
Class	8 Corrosive substances
Label	8
Packing group DOT, ADR, IMDG, IATA	III
Environmental hazards:	Not applicable.
Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides

Product Name: 1000 µg/mL Selenium

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	(Contd. of page 5
· Transport/Additional information:	
· ADR	
\cdot Excepted quantities (EQ)	Code: El
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EO)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
7782-49-2 selenium
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.

Carcinogenic categories
 EPA (Environmental Protection Agency)
 7782-49-2 selenium
 D
 TLV (Threshold Limit Value)
 None of the ingredients is listed.
 NIOSH-Ca (National Institute for Occupational Safety and Health)
 None of the ingredients is listed.

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). • Hazard pictograms



· Signal word Warning

· Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse.

Product Name: 1000 µg/mL Selenium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

(Contd. of page 6)

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P337+P313
                   If eye irritation persists: Get medical advice/attention.
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· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: product safety department
- · Contact:
- Spex CertiPrep, LLC.
- 1-732-549-7144
- · Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

us —



Reviewed on 02/09/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Silicon</u>
- · Part Number:

PLSI9-2Y PLSI9-2M PLSI9-2T PLSI9-2X

- · Application of the substance / the mixture For Laboratory Use Only
- \cdot Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet • Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen,

NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

• Emergency telephone number:

Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture The product is not classified, according to the Globally Harmonized System (GHS).

- · Label elements
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)

HEALTH0Health = 0FIRE0Fire = 0REACTIVITY0Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:	
16919-19-0 ammonium hexafluorosilicate	0.64%
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	99.36%

4 First-aid measures

- \cdot Description of first aid measures
- · General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- \cdot After skin contact: Generally the product does not irritate the skin.
- After eye contact: Rinse opened eye for several minutes under running water.
- \cdot After swallowing: Do not give anything to eat or drink Do not induce vomitting



Product Name: 1000 µg/mL Silicon

(Contd. of page 1)

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- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). • Reference to other sections
- See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information. • Protective Action Criteria for Chemicals

· PAC-1:

· FAC-1:	
16919-19-0 ammonium hexafluorosilicate	12 mg/m ³
· PAC-2:	
16919-19-0 ammonium hexafluorosilicate	130 mg/m ³
• PAC-3:	
16919-19-0 ammonium hexafluorosilicate	780 mg/m ³

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special measures required.
- Follow good laboratory practices.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
- · Respiratory protection: Not required.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 3)

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Product Name: 1000 µg/mL Silicon

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties			
Information on basic physical and c. General Information Appearance:	hemical properties		
Form:	Liquid		
Color:	According to product specification		
· Odor:	Characteristic		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
• Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
• Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
• Density at 20 °C (68 °F)	1.00096 g/cm ³ (8.35301 lbs/gal)		
· Relative density	Not applicable.		
· Vapor density	Not applicable.		
· Evaporation rate	Not applicable.		
 Solubility in / Miscibility with Water: 	Fully miscible.		
· Partition coefficient (n-octanol/wate	r): Not applicable.		
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
Solvent content:			
Water:	99.4 % 0.00 %		
VOC content:			
Solids content:	0.0 %		
• Other information	No further relevant information available.		

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- · Sensitization: No sensitizing effects known.
- \cdot Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

Reviewed on 02/09/2024

(Contd. of page 2)

Product Name: 1000 µg/mL Silicon

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Safety Data Sheet

acc. to OSHA HCS

· Carcinogenic categories
· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.
· NTP (National Toxicology Program)
None of the ingredients is listed.
· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

· Toxicity

- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available}.$
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- \cdot General notes: Not hazardous for water.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- \cdot Waste treatment methods
- Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- $\cdot \textit{Recommended cleansing agent: Water, if necessary with cleansing agents.}$

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated	
· Packing group · DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
· UN "Model Regulation":	Not Regulated	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
 Sara

· Section 313 (Specific toxic chemical listings):	
None of the ingredients is listed.	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
	(Contd. on page 5)

Reviewed on 02/09/2024

Product Name: 1000 µg/mL Silicon

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us —

	(Contd. of page 4)
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	

Safety Data Sheet

acc. to OSHA HCS

· TLV (Threshold Limit Value)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements Not Regulated

· Hazard pictograms Not Regulated

- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.

1-732-549-7144

- · Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- IMDDs: International Martume Code for Dangerous Goods DOT: US Department of Transport Association IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: Chemical Abstracts Service (division of the American Chemical Society) NEDA (Microal Even Department)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: 1000 µg/mL Tin
- · Part Number:

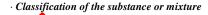
PLSN5-2Y PLSN5-2M PLSN5-2T PLSN5-2X · Application of the substance / the mixture For Laboratory Use Only

- · Uses advised against Not for Human or Animal Use
- · Details of the supplier of the safety data sheet · Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

· Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification



GHS05 Corrosion

Eye Damage 1

H318 Causes serious eye damage.



H315 Causes skin irritation.

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

- Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Danger

· Hazard-determining components of labeling: hydrochloric acid · Hazard statements H315 Causes skin irritation. H318 Causes serious eye damage. H335 May cause respiratory irritation. · Precautionary statements P261 Avoid breathing dust/fume/gas/mist/vapors/spray P264 Wash thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a poison center/doctor. P321 Specific treatment (see on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P332+P313 If skin irritation occurs: Get medical advice/attention. P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Product Name: 1000 µg/mL Tin

 P405
 Store locked up.

 P501
 Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)



- Other hazards
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:	
7647-01-0 hydrochloric acid	20.0%
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	79.9%
7440-31-5 tin	0.1%

Safety Data Sheet

acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

• Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away. • Environmental precautions:

Dilute with plenty of water.

- Do not allow to enter sewers/ surface or ground water.
- \cdot Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent.
- Dispose contaminated material as waste according to section 13.
- Ensure adequate ventilation.
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Reviewed on 03/11/2024

(Contd. of page 1)

Product Name: 1000 µg/mL Tin

	(Contd. of page
Protective Action Criteria for Chemicals PAC-1:	
7647-01-0 hydrochloric acid	1.8 pp
7440-31-5 tin	6 mg/n
PAC-2:	
7647-01-0 hydrochloric acid	22 ppm
7440-31-5 tin	67 mg/.
PAC-3:	
7647-01-0 hydrochloric acid	100 ppm
7440-31-5 tin	400 mg/

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- Ensure good ventilation/exhaustion at the workplace.
- Prevent formation of aerosols.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see section 7.

· Control parameters

· Components with limit values that require monitoring at the workplace:

7647-01-0 hydrochloric acid

- PEL Ceiling limit value: 7 mg/m³, 5 ppm
- REL Ceiling limit value: 7 mg/m³, 5 ppm
- TLV Ceiling limit value: 2 ppm
 - A4

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

· Personal protective equipment:

- General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:



The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

• Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 4) US -

Product Name: 1000 µg/mL Tin

· Eye protection:



Tightly sealed goggles

· Information on basic physical and ch	emical properties		
• General Information			
· Appearance:	Linuid		
Form: Color:	Liquid According to product specification		
· Odor:	Characteristic		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
· Change in condition			
Melting point/Melting range:	Undetermined.		
Boiling point/Boiling range:	100 °C (212 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
· Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
• Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
\cdot Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
· Density at 20 °C (68 °F)	1.0325 g/cm ³ (8.61621 lbs/gal)		
· Relative density	Not applicable.		
· Vapor density	Not applicable.		
· Evaporation rate	Not applicable.		
· Solubility in / Miscibility with			
Water:	Fully miscible.		
· Partition coefficient (n-octanol/water)	· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
· Solvent content:			
Water:	79.9 %		
VOC content:	0.00 %		
Solids content:	0.1 %		
• Other information	No further relevant information available.		

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions No dangerous reactions known.

• Conditions to avoid No further relevant information available.

· Incompatible materials: No further relevant information available.

· Hazardous decomposition products: No dangerous decomposition products known.

(Contd. on page 5)

Reviewed on 03/11/2024

(Contd. of page 3)

Product Name: 1000 µg/mL Tin

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

7647-01-0 hydrochloric acid

- Oral LD50 900 mg/kg (rabbit)
- · Primary irritant effect:

• on the skin:

- Caustic effect on skin and mucous membranes.
- Irritant to skin and mucous membranes.
- on the eye: Strong irritant with the danger of severe eye injury.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:
- The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

7647-01-0 hydrochloric acid

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information		
· UN-Number · DOT, ADR, IMDG, IATA	UN1789	
· UN proper shipping name		
$\cdot DOT$	Hydrochloric acid	
·ADR	1789 HYDROCHLORIC ACID	
· IMDG, IATA	HYDROCHLORIC ACID	
		(Contd. on page 6
		· · · · · · · · · · · · · · · · · · ·

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(Contd. of page 4)

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024



Product Name: 1000 µg/mL Tin

	(Contd. of page 5)
· Transport hazard class(es)	
· DOT	
· Class	8 Corrosive substances
·Label	8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	11
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids C SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and th	he IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1789 HYDROCHLORIC ACID, 8, II

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

· Section 313 (Specific toxic chemical listings):	
7647-01-0 hydrochloric acid	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
7647-01-0 hydrochloric acid	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
	(Contd. on page 7)
	US

Product Name: 1000 µg/mL Tin

(Contd. of page 6)

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· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
7647-01-0 hydrochloric acid	A4
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).



· Signal word Danger

· Hazard-determining components of labeling:

hydrochloric acid

· Hazard statements

H315 Causes skin irritation.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

Precautionary statements

Avoid breathing dust/fume/gas/mist/vapors/spray P261 P264 Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area. P271

P280 Wear eye protection / face protection.

P302+P352 If on skin: Wash with plenty of water.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a poison center/doctor.

P321 Specific treatment (see on this label).

P362 + P364Take off contaminated clothing and wash it before reuse.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: product safety department
- Contact:
- Spex CertiPrep, LLC.
- 1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- DOT: US Department of Transportation

IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health TLV: Threshold Limit Value

PEL: Permissible Exposure Limit REL: Recommended Exposure Limit

Skin Irritation 2: Skin corrosion/irritation - Category 2

Eye Damage 1: Serious eye damage/eye irritation – Category 1 Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3





Reviewed on 02/28/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Strontium</u>
- · Part Number:

PLSR2-2Y PLSR2-2M PLSR2-2T PLSR2-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	Y 0	Reactivity =

Product Name: 1000 µg/mL Strontium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

7077-57-2 mine deta	2.0 /0
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	97.76%
10042-76-9 strontium nitrate	0.24%

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

7697-37-2 nitric acid	0.16 ppm
10042-76-9 strontium nitrate	5.7 mg/m
· PAC-2:	
7697-37-2 nitric acid	24 ppm
10042-76-9 strontium nitrate	62 mg/m
· PAC-3:	
7697-37-2 nitric acid	92 ppm
10042-76-9 strontium nitrate	370 mg/m

7 Handling and storage

· Handling:

- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.

Reviewed on 02/28/2024

(Contd. of page 1)

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Safety Data Sheet acc. to OSHA HCS



Product Name: 1000 µg/mL Strontium

Reviewed on 02/28/2024

(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.
- Immediately remove all solied and contaminated cioining
- Wash hands before breaks and at the end of work. Avoid contact with the eyes.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin. • **Respiratory protection:** Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· · ·	
· Information on basic physical and	chemical properties
• General Information	
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Strontium

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		(Contd. of page 3)	
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
\cdot Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
• Density at 20 °C (68 °F)	1.01483 g/cm³ (8.46876 lbs/gal)		
· Relative density	Not applicable.		
· Vapor density	Not applicable.		
· Evaporation rate	Not applicable.		
· Solubility in / Miscibility with			
Water:	Fully miscible.		
· Partition coefficient (n-octanol/wate	· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
· Solvent content:			
Water:	97.8 %		
VOC content:	0.00 %		
Solids content:	0.2 %		
· Other information	No further relevant information available.		

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.

· Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

ARC (International Agency for Research on Cancer)		
None of the ingredients is listed.		
NTP (National Toxicology Program)		
None of the ingredients is listed.		
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Strontium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 02/28/2024

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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page 6



Product Name: 1000 µg/mL Strontium

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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
10042-76-9 strontium nitrate
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
· EPA (Environmental Protection Agency)
None of the ingredients is listed.
· TLV (Threshold Limit Value)
None of the ingredients is listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.
• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

• *GHS label elements* The product is classified and labeled according to the Globally Harmonized System (GHS). • *Hazard pictograms*



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 *Take off contaminated clothing and wash it before reuse.* P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Strontium

(Contd. of page 6)

Reviewed on 02/28/2024

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

- ADR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Instrumentory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

US —



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Titanium</u>
- **Part Number:** PLTI9-2Y PLTI9-2M

PLTI9-2T PLTI9-2X Application of the sub

- $\cdot \textit{Application of the substance / the mixture For Laboratory Use Only}$
- \cdot Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,

NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

• Emergency telephone number:

Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture The product is not classified, according to the Globally Harmonized System (GHS).

- · Label elements
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- · Signal word Not Regulated
- $\cdot \textit{Hazard statements} \textit{ Not Regulated}$
- · Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)

HEALTH \bigcirc Health = 0FIRE \bigcirc Fire = 0REACTIVITY \bigcirc Reactivity = 0

· Other hazards

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:	
16962-40-6 Ammonium hexafluorotitanate	0.41%
· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	99.59%

4 First-aid measures

- \cdot Description of first aid measures
- · General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Generally the product does not irritate the skin.
- After eye contact: Rinse opened eye for several minutes under running water.
- \cdot After swallowing: Do not give anything to eat or drink Do not induce vomitting



Product Name: 1000 µg/mL Titanium

(Contd. of page 1)

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Reviewed on 03/11/2024

- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). • Reference to other sections
- See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:

None of the ingredients is listed.

· PAC-2:

None of the ingredients is listed.

· PAC-3:

None of the ingredients is listed.

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special measures required.
- Follow good laboratory practices.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities

· Storage:

- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
- · Respiratory protection: Not required.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• *Penetration time of glove material* The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 3)

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Product Name: 1000 µg/mL Titanium

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties	9 Physical and chemical properties		
· Information on basic physical and c	hemical properties		
· General Information			
· Appearance:			
Form:	Liquid		
Color:	According to product specification		
· Odor:	Characteristic		
· Odour Threshold:	Not applicable.		
· pH-value:	Not applicable.		
• Change in condition			
Melting point/Melting range:	Undetermined.		
Boiling point/Boiling range:	100 °C (212 °F)		
· Flash point:	Not applicable.		
· Flammability (solid, gaseous):	Not applicable.		
• Decomposition temperature:	Not applicable.		
· Ignition temperature:	Product is not selfigniting.		
• Danger of explosion:	Product does not present an explosion hazard.		
· Explosion limits:			
Lower:	Not applicable.		
Upper:	Not applicable.		
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)		
• Density at 20 °C (68 °F)	1.00781 g/cm ³ (8.41017 lbs/gal)		
· Relative density	Not applicable.		
· Vapor density	Not applicable.		
· Evaporation rate	Not applicable.		
· Solubility in / Miscibility with			
Water:	Fully miscible.		
· Partition coefficient (n-octanol/water): Not applicable.			
· Viscosity:			
Dynamic:	Not applicable.		
Kinematic:	Not applicable.		
· Solvent content:			
Water:	99.6 % 0.00 %		
VOC content:	0.00 %		
Solids content:	0.0 %		
• Other information	No further relevant information available.		

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- \cdot Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- Additional toxicological information:
- The product is not subject to classification according to internally approved calculation methods for preparations:

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(Contd. of page 2)

Reviewed on 03/11/2024

Product Name: 1000 µg/mL Titanium

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Safety Data Sheet

acc. to OSHA HCS

· Carcinogenic categories		
· IARC (International Agency for Research on Cancer)		
None of the ingredients is listed.		
· NTP (National Toxicology Program)		
None of the ingredients is listed.		
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

12 Ecological information

· Toxicity

- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available}.$
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes: Not hazardous for water.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- $\cdot \textit{Recommended cleansing agent: Water, if necessary with cleansing agents.}$

14 Transport information

· UN-Number · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated	
· Packing group · DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
· UN "Model Regulation":	Not Regulated	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
 Sara

· Section 313 (Specific toxic chemical listings):	
None of the ingredients is listed.	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
	(Contd. on page 5)

(Contd. of page 3)

Product Name: 1000 µg/mL Titanium

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	(Contd. of page
Proposition 65	
Chemicals known to cause cancer:	
None of the ingredients is listed.	
Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
Carcinogenic categories	
EPA (Environmental Protection Agency)	
None of the ingredients is listed.	

Safety Data Sheet

acc. to OSHA HCS

· TLV (Threshold Limit Value)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements Not Regulated

· Hazard pictograms Not Regulated

- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.

1-732-549-7144

- · Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- IMDDs: International Martume Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: Chemical Abstracts Service (division of the American Chemical Society) NEDA (Microal Even Department)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit



Reviewed on 03/11/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Thallium</u>
- · Part Number:

PLTL2-2Y PLTL2-2M PLTL2-2T PLTL2-2X

- $\cdot \textit{Application of the substance / the mixture For Laboratory Use Only}$
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
- 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

- Emergency telephone number:
- Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264Wash thoroughly after handling.P264Wash thoroughly after handling.P280Wear eye protection / face protection.P302+P352If on skin: Wash with plenty of water.P321Specific treatment (see on this label).P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.P332+P313If skin irritation occurs: Get medical advice/attention.P362+P364Take off contaminated clothing and wash it before reuse.P337+P313If eye irritation persists: Get medical advice/attention.Charaffection environ
- Classification system: • NFPA ratings (scale 0 - 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVIT	YO	Reactivity = 0

Product Name: 1000 µg/mL Thallium

· Other hazards

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

10102-45-1 thallium nitrate

· Chemical identification of the substance/preparation

7732-18-5 water, distilled, conductivity or of similar purity

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

· Protective Action Criteria for Chemicals DAC

7697-37-2 nitric acid	0.16 ppm
10102-45-1 thallium nitrate	0.078 mg/m
· PAC-2:	
7697-37-2 nitric acid	24 ppm
10102-45-1 thallium nitrate	4.3 mg/m
• PAC-3:	
7697-37-2 nitric acid	92 ppm
10102-45-1 thallium nitrate	26 mg/m

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.

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0.13%

97.87%

Reviewed on 03/11/2024

(Contd. of page 1)

Safety Data Sheet

acc. to OSHA HCS



Product Name: 1000 µg/mL Thallium

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(Contd. of page 2)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see section 7.

· Control parameters

- · Components with limit values that require monitoring at the workplace:
- The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the remaining constituent has no known exposure limits.

	ð · · · · · · · · · · · · · · · · · · ·
1010	2-45-1 thallium nitrate
	Long-term value: 0.1 mg/m ³
	as Tl; Skin
	Long-term value: 0.1 mg/m ³
	as Tl; Skin
	Long-term value: $0.02* \text{ mg/m}^3$
	as Tl; *inhalable fraction; Skin
· Addi	<i>itional information:</i> The lists that were valid during the creation were used as basis.
· Expo	osure controls
· Perse	onal protective equipment:
	eral protective and hygienic measures:
	p away from foodstuffs, beverages and feed.
Imme	ediately remove all soiled and contaminated clothing.

Safety Data Sheet acc. to OSHA HCS

Wash hands before breaks and at the end of work. Avoid contact with the eyes.

Avoid contact with the eyes and skin.

- · Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- · Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and o · General Information	chemical properties
· Appearance: Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
• Change in condition Melting point/Melting range:	Undetermined.

Product Name: 1000 µg/mL Thallium

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		(Contd. of page 3)
Boiling point/Boiling range:	100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
· Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
• Danger of explosion:	Product does not present an explosion hazard.	
· Explosion limits: Lower: Upper:	Not applicable. Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
 Density at 20 °C (68 °F) Relative density Vapor density Evaporation rate 	1.01598 g/cm³ (8.47835 lbs/gal) Not applicable. Not applicable. Not applicable.	
• Solubility in / Miscibility with Water:	Fully miscible.	
· Partition coefficient (n-octanol/water): Not applicable.	
· Viscosity: Dynamic: Kinematic:	Not applicable. Not applicable.	
· Solvent content: Water: VOC content:	97.9 % 0.00 %	
Solids content:	0.1 %	
• Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50	values th	at are re	levant for	· classi	fication:
-----------	-----------	-----------	------------	----------	-----------

7697-37-2 nitric acid

- Inhalative LC50/4 h 2.65 mg/l (ATE)
- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- Sensitization: No sensitizing effects known.
- · Additional toxicological information:
- The product shows the following dangers according to internally approved calculation methods for preparations:
- Irritant

 Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	
(Con	ntd. on page 5)



Product Name: 1000 µg/mL Thallium

Reviewed on 03/11/2024

(Contd. of page 4)

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

UN-Number DOT, ADR, IMDG, IATA	UN3264
UN proper shipping name DOT ADR IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
Transport hazard class(es)	
DOT	
Class Label	8 Corrosive substances 8
Class	8 Corrosive substances
Label	8
Packing group DOT, ADR, IMDG, IATA	111
Environmental hazards:	Not applicable.
Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides

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Product Name: 1000 µg/mL Thallium

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	(Contd. of page 5
· Transport/Additional information:	
·ADR	
· Excepted quantities (EQ)	Code: El
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

Safety Data Sheet

acc. to OSHA HCS

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara

· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
10102-45-1 thallium nitrate
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
· EPA (Environmental Protection Agency)
10102-45-1 thallium nitrate

· TLV (Threshold Limit Value)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). • Hazard pictograms



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse.

Product Name: 1000 µg/mL Thallium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

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P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.
- 1-732-549-7144
- · Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A



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1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Vanadium</u>
- · Part Number:
- PLV2-2Y
- PLV2-2M
- PLV2-2X
- Application of the substance / the mixture For Laboratory Use Only • Uses advised against Not for Human or Animal Use
- · Details of the supplier of the safety data sheet
- Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com
- Information department: product safety department • Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms



- Signal word Warning • Hazard statements
- Hazara statements H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- · Precautionary statements
- P264 Wash thoroughly after handling.
- P280 Wear eye protection / face protection.
- P302+P352 If on skin: Wash with plenty of water.
- P321 Specific treatment (see on this label).
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- Classification system:
- · NFPA ratings (scale 0 4)



Health = 2Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Product Name: 1000 µg/mL Vanadium

· Other hazards

- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

- 7803-55-6 vanadium from ammonium metavanadate
- · Chemical identification of the substance/preparation
- 7732-18-5 water, distilled, conductivity or of similar purity

4 First-aid measures

- · Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Safety Data Sheet

acc. to OSHA HCS

- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

Protective Action Criteria for Chemicals

7697-37-2 nitric acid	0.16 ppm
7803-55-6 vanadium from ammonium metavanadate	0.01 mg/m ²
• PAC-2:	
7697-37-2 nitric acid	24 ppm
55-6 vanadium from ammonium metavanadate 0	
• PAC-3:	
7697-37-2 nitric acid	92 ppm
7803-55-6 vanadium from ammonium metavanadate	80 mg/m-

7 Handling and storage

- Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.

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2.0%

0.23%

97.77%

Reviewed on 03/11/2024

(Contd. of page 1)



Product Name: 1000 µg/mL Vanadium

Reviewed on 03/11/2024

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- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.
- Immediately remove all solled and contaminated clothing
- Wash hands before breaks and at the end of work. Avoid contact with the eyes.
- Avoia contact with the eyes.
- Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

• Information on basic physical and • General Information	Information on basic physical and chemical properties	
· Appearance:		
Form:	Liquid	
Color:	According to product specification	
· Odor:	Characteristic	
· Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
· Change in condition		
Melting point/Melting range:	Undetermined.	
Boiling point/Boiling range:	100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
· Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
· Danger of explosion:	Product does not present an explosion hazard.	
	(Contd. on page 4)	

(Contd. on page 4)

Product Name: 1000 µg/mL Vanadium

(Contd of page 3)

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	(Cond. of page 5)
· Explosion limits:	
Lower:	Not applicable.
Upper:	Not applicable.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
• Density at 20 °C (68 °F)	1.01311 g/cm ³ (8.4544 lbs/gal)
· Relative density	Not applicable.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/wat	er): Not applicable.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Water:	97.8 %
VOC content:	0.00~%
Solids content:	0.2 %
· Other information	No further relevant information available.

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

• on the skin: Irritant to skin and mucous membranes.

• on the eye: Irritating effect.

- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



Product Name: 1000 µg/mL Vanadium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- *PBT:* Not applicable. *vPvB:* Not applicable.
- Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
\cdot Transport in bulk according to Annex II of MARPOL73/78 an	d the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page of



Safety Data Sheet acc. to OSHA HCS

Reviewed on 03/11/2024

Product Name: 1000 µg/mL Vanadium

(Contd.	of	page	5)
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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara
· Section 313 (Specific toxic chemical listings):
7697-37-2 nitric acid
7803-55-6 vanadium from ammonium metavanadate
· TSCA (Toxic Substances Control Act):
All components have the value ACTIVE.
· Hazardous Air Pollutants
None of the ingredients is listed.
Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· Carcinogenic categories
· EPA (Environmental Protection Agency)
None of the ingredients is listed.
· TLV (Threshold Limit Value)
None of the ingredients is listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS)

• *GHS label elements* The product is classified and labeled according to the Globally Harmonized System (GHS). • *Hazard pictograms*



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements Wash thoroughly after handling. P264 P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 *Take off contaminated clothing and wash it before reuse.* P337+P313 If eye irritation persists: Get medical advice/attention. · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Safety Data Sheet acc. to OSHA HCS

certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Vanadium

(Contd. of page 6)

Reviewed on 03/11/2024

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

· Contact:

Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

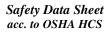
- ADR: Accord relatif at transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation IATA: International Air Transport Association
- EINECS: European Instrumentory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit
- Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

US —





Reviewed on 01/24/2024

1 Identification

- · Product identifier
- · Product Name: 1000 µg/mL Tungsten
- · Part Number:
- PLW9-2Y
- PLW9-2M PLW9-2X
- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- · Details of the supplier of the safety data sheet
- · Manufacturer/Supplier: Spex CertiPrep, LLC. 203 Norcross Ave, Metuchen, NJ 08840 USA 732-549-7144 USMet-CRMSales@antylia.com
- · Information department: product safety department · Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

- · Classification of the substance or mixture The product is not classified, according to the Globally Harmonized System (GHS).
- · Label elements
- · GHS label elements Not Regulated
- · Hazard pictograms Not Regulated
- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Classification system:
- · NFPA ratings (scale 0 4)



· HMIS-ratings (scale 0 - 4)



- · Other hazards
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.
- · Dangerous components: Not Regulated

· Chemical identification of the substance/preparation	
7732-18-5 water, distilled, conductivity or of similar purity	99.87%
1314-35-8 tungsten(VI) oxide	0.13%

4 First-aid measures

- · Description of first aid measures
- · General information: No special measures required.
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Generally the product does not irritate the skin.
- · After eye contact: Rinse opened eye for several minutes under running water.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting



Product Name: 1000 µg/mL Tungsten

Reviewed on 01/24/2024

(Contd. of page 1)

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- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: Dilute with plenty of water.
- Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). • Reference to other sections
- See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
1314-35-8 tungsten(VI) oxide	13 mg/m ³
· PAC-2:	
1314-35-8 tungsten(VI) oxide	140 mg/m ³
• PAC-3:	
1314-35-8 tungsten(VI) oxide	860 mg/m ³

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- No special measures required.
- Follow good laboratory practices.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
- · Respiratory protection: Not required.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• *Penetration time of glove material* The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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– US —

Product Name: 1000 µg/mL Tungsten

0 Physical and chamical propertie

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties		
Information on basic physical and cl General Information	hemical properties	
· Appearance: Form:	Liquid	
Color:	According to product specification	
· Odor:	Characteristic	
· Odour Threshold:	Not applicable.	
· pH-value:	Not applicable.	
· Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not applicable.	
• Decomposition temperature:	Not applicable.	
· Ignition temperature:	Product is not selfigniting.	
• Danger of explosion:	Product does not present an explosion hazard.	
· Explosion limits:		
Lower:	Not applicable.	
Upper:	Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
· Density at 20 °C (68 °F)	0.99968 g/cm ³ (8.34233 lbs/gal)	
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/water): Not applicable.		
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	99.9 % 0.00 %	
VOC content:	0.00 %	
Solids content:	0.1 %	
• Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- · Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- · Sensitization: No sensitizing effects known.
- \cdot Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

Reviewed on 01/24/2024

(Contd. of page 2)

Product Name: 1000 µg/mL Tungsten

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Safety Data Sheet

acc. to OSHA HCS

· Carcinogenic categories
· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.
· NTP (National Toxicology Program)
None of the ingredients is listed.
· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential No further relevant information available}.$
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes: Not hazardous for water.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	Not Regulated	
· UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated	
· Packing group · DOT, ADR, IMDG, IATA	Not Regulated	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	
• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.		
· UN "Model Regulation":	Not Regulated	

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. · Sara

· Section 313 (Specific toxic chemical listings):	
None of the ingredients is listed.	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
	(Contd. on page 5)

Reviewed on 01/24/2024

(Contd. of page 3)

Product Name: 1000 µg/mL Tungsten

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us -

(Contd. of page 4)

· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	

Safety Data Sheet

acc. to OSHA HCS

None of the ingredients is listed.

- · NIOSH-Ca (National Institute for Occupational Safety and Health)
- None of the ingredients is listed.
- · GHS label elements Not Regulated

· Hazard pictograms Not Regulated

- · Signal word Not Regulated
- · Hazard statements Not Regulated
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.

1-732-549-7144

- · Date of preparation / last revision 03/11/2024
- · Abbreviations and acronyms:
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

- IMDDs: International Martume Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: Chemical Abstracts Service (division of the American Chemical Society) NEDA (Microal Even Department)

- NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit REL: Recommended Exposure Limit



Reviewed on 02/16/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Yttrium</u>
- · Part Number:
- PLY2-2Y PLY2-2M PLY2-2T
- PLY2-2X
- \cdot Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
- 732-549-7144 USMet-CRMSales@antylia.com
- · Information department: product safety department
- *Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887*

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	Y 0	Reactivity =

Product Name: 1000 µg/mL Yttrium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

· Chemical identification of the substance/preparation
7732-18-5 water, distilled, conductivity or of similar purity
1314-36-9 yttrium oxide

Safety Data Sheet

acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
1314-36-9 yttrium oxide	3.8 mg/m
· PAC-2:	
7697-37-2 nitric acid	24 ppm
1314-36-9 yttrium oxide	43 mg/m
• PAC-3:	
7697-37-2 nitric acid	92 ppm
1314-36-9 yttrium oxide	260 mg/m

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

Reviewed on 02/16/2024

(Contd. of page 1)

2.0%

97.87% 0.13%



Product Name: 1000 µg/mL Yttrium

Reviewed on 02/16/2024

(Contd. of page 2)

- \cdot Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.
- Immediately remove all solled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- **Respiratory protection:** Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Safety Data Sheet acc. to OSHA HCS

- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

 Information on basic physical and General Information 	chemical properties
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd. on page 4)

(Contd. on page 4)

Product Name: 1000 µg/mL Yttrium

		(Contd. of page 3)
· Explosion limits: Lower: Upper:	Not applicable. Not applicable.	
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
 Density at 20 °C (68 °F) Relative density Vapor density Evaporation rate 	1.01527 g/cm³ (8.47243 lbs/gal) Not applicable. Not applicable. Not applicable.	
· Solubility in / Miscibility with Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	e r): Not applicable.	
· Viscosity: Dynamic: Kinematic:	Not applicable. Not applicable.	
· Solvent content: Water: VOC content:	97.9 % 0.00 %	
Solids content:	0.1 %	
· Other information	No further relevant information available.	

Safety Data Sheet

acc. to OSHA HCS

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.

· Sensitization: No sensitizing effects known.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

ARC (International Agency for Research on Cancer)
lone of the ingredients is listed.
NTP (National Toxicology Program)
lone of the ingredients is listed.
OSHA-Ca (Occupational Safety & Health Administration)
lone of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.

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Product Name: 1000 µg/mL Yttrium

Safety Data Sheet acc. to OSHA HCS

Reviewed on 02/16/2024

(Contd. of page 4)

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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
· DOT	
· Class · Label	8 Corrosive substances 8
· ADR, IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and	nd the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page 6

(Contd. on page 6)

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Product Name: 1000 µg/mL Yttrium

· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara	
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).	
· Hazard pictograms	



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other inform<u>ation</u>

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

us —

Safety Data Sheet acc. to OSHA HCS

certiprep
Printing date 03/11/2024

Product Name: 1000 µg/mL Yttrium

Department issuing SDS: product safety department
Contact:
Spex CertiPrep, LLC.
1-732-549-7144
Date of preparation / last revision 03/11/2024
Abbreviations and acronyms:
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ELINCS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hacardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LCS0: Lethal concentration, 50 percent
LDS0: Lethal concentration, 50 percent
LDS0: Lethal concentualitive and Toxic
VPVB: very Persistent and very Bioaccumulative
NIOSH: Autional Institute of Occupational Sefrys
OSHA: Occupational Safety & Health
TU: Threshold Limit Value
PEL: Permistible Exposure Limit
REL: Recommended Exposure Limit
Skin Irritation 2: Skin corrosion/irritation – Category 2A

Reviewed on 02/16/2024

(Contd. of page 6)



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Reviewed on 01/24/2024

1 Identification

- · Product identifier
- · Product Name: 1000 µg/mL Zinc
- · Part Number:

PLZN2-2Y PLZN2-2M PLZN2-2T PLZN2-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
- 732-549-7144 USMet-CRMSales@antylia.com

· Information department: product safety department

- Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300)
- Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	Y 0	Reactivity =

Product Name: 1000 µg/mL Zinc

· Other hazards

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

/ 0// 0/ 1	
· Chemical i	dentification of the substance/preparation
7732-18-5	water, distilled, conductivity or of similar purity
7440-66-6	zinc powder- zinc dust (pyrophoric)

Safety Data Sheet

acc. to OSHA HCS

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:
- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.
- · Protective Action Criteria for Chemicals

· PAC-1:	
7697-37-2 nitric acid	0.16 ppm
• PAC-2:	
7697-37-2 nitric acid	24 ppm
• PAC-3:	
7697-37-2 nitric acid	92 ppm

7 Handling and storage

· Handling:

- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.

(Contd. of page 1)

2.0%

97.9% 0.1%

Product Name: 1000 µg/mL Zinc

Reviewed on 01/24/2024

(Contd. of page 2)

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

• Additional information about design of technical systems: No further data; see section 7.

- · Control parameters
- · Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. • Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

• Information on basic physical and c • General Information	chemical properties
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
• Change in condition Melting point/Melting range: Boiling point/Boiling range:	Undetermined. 100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
• Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits: Lower: Upper:	Not applicable. Not applicable.
Opper.	nor appreade.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
· Density at 20 °C (68 °F)	1.0162 g/cm ³ (8.48019 lbs/gal)
	(Contd. on page 4)

Product Name: 1000 µg/mL Zinc

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		(Contd. of page 3)
· Relative density	Not applicable.	
· Vapor density	Not applicable.	
· Evaporation rate	Not applicable.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octano	l/water): Not applicable.	
· Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
· Solvent content:		
Water:	97.9 %	
VOC content:	0.00 %	
Solids content:	0.1 %	
· Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

- · Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

Product Name: 1000 µg/mL Zinc

 $\cdot \textit{Other adverse effects} \textit{ No further relevant information available}.$

13 Disposal considerations

· Waste treatment methods

• Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Safety Data Sheet

acc. to OSHA HCS

· Uncleaned packagings:

· Recommendation: Disposal must be made according to official regulations.

• Recommended cleansing agent: Water, if necessary with cleansing agents.

· UN-Number · DOT, ADR, IMDG, IATA	UN3264
UN proper shipping name DOT ADR IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
Transport hazard class(es)	
DOT	8 Corrosive substances
Label	8
ADR, IMDG, IATA	
- Class	8 Corrosive substances
Label	8
· Packing group · DOT, ADR, IMDG, IATA	111
Environmental hazards:	Not applicable.
Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
Transport in bulk according to Annex II of MARPOL73/78 an	ad the IBC Code Not applicable.
Transport/Additional information:	
ADR Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
IMDG Limited quantities (LQ) Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACI 8, III
	(Contd. on page

Reviewed on 01/24/2024

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15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available. • Sara	
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
7440-66-6 zinc powder- zinc dust (pyrophoric)	
· TSCA (Toxic Substances Control Act):	
7732-18-5 water, distilled, conductivity or of similar purity	ACTIVE
7697-37-2 nitric acid	ACTIVE
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	

· Carcinogenic categories · EPA (Environmental Protection Agency)

7440-66-6 zinc powder- zinc dust (pyrophoric)	11
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	
·NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	

• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



· Signal word Warning

· Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear eye protection / face protection.

P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label).

- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P362+P364
- Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: product safety department

- · Contact:
- Spex CertiPrep, LLC.

1-732-549-7144

· Date of preparation / last revision 03/11/2024

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods



Product Name: 1000 µg/mL Zinc

DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSH: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Skin Irritation 2: Skin corrosion/irritation – Category 2 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A Safety Data Sheet

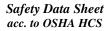
acc. to OSHA HCS

US —

Reviewed on 01/24/2024

(Contd. of page 6)





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Reviewed on 03/07/2024

1 Identification

- · Product identifier
- · Product Name: <u>1000 µg/mL Zirconium</u>
- · Part Number:

PLZR2-2Y PLZR2-2M PLZR2-2T PLZR2-2X

- · Application of the substance / the mixture For Laboratory Use Only
- · Uses advised against Not for Human or Animal Use
- Details of the supplier of the safety data sheet
 Manufacturer/Supplier:
 Spex CertiPrep, LLC.
 203 Norcross Ave, Metuchen,
 NJ 08840 USA
 732-549-7144
- USMet-CRMSales@antylia.com

· Information department: product safety department

Emergency telephone number: Emergency Phone Number (24 hours) CHEMTREC (800-424-9300) Outside US: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irritation 2 H315 Causes skin irritation.

- Eye Irritation 2A H319 Causes serious eye irritation.
- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



· Signal word Warning

- · Hazard statements
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

· Precautionary statements

- P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

Product Name: 1000 µg/mL Zirconium

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2 nitric acid

Chemical identification of the substance/preparation

	7732-18-5	water, distilled,	conductivity	or of similar	purity
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7440-67-7 zirconium

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Immediately rinse with water.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: Do not give anything to eat or drink Do not induce vomitting
- · Information for Doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures Not required.

· Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

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- · Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

0.16 ppm
10 mg/m ³
24 ppm
83 mg/m ³
92 ppm
500 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling No special precautions are necessary if used correctly.

· Information about protection against explosions and fires: No special measures required.

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2.0%

97.9%

0.1%





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- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- Components with limit values that require monitoring at the workplace:
- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:
- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.
- · Respiratory protection: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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- Penetration time of glove material The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- · Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and	chemical properties
· General Information	
· Appearance:	
Form:	Liquid
Color:	According to product specification
· Odor:	Characteristic
· Odour Threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not applicable.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
	(Contd. on page 4)

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	(Contd. of page 3
· Explosion limits:	
Lower:	Not applicable.
Upper:	Not applicable.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
· Density	Not applicable.
· Relative density	Not applicable.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/wate	e r): Not applicable.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Water:	97.9 %
VOC content:	0.00~%
Solids content:	0.1 %
• Other information	No further relevant information available.

10 Stability and reactivity

· Reactivity No further relevant information available.

- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

7697-37-2 nitric acid

Inhalative LC50/4 h 2.65 mg/l (ATE)

· Primary irritant effect:

• on the skin: Irritant to skin and mucous membranes.

• on the eye: Irritating effect.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
None of the ingredients is listed.	
· NTP (National Toxicology Program)	
None of the ingredients is listed.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.



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- · Additional ecological information:
- · General notes:
- Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- · Uncleaned packagings:
- **Recommendation:** Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· Transport hazard class(es)	
·DOT	
· Class	8 Corrosive substances
· Label	8
· Class	8 Corrosive substances
· Label	8
· Packing group · DOT, ADR, IMDG, IATA	111
· Environmental hazards:	Not applicable.
· · · · · · · · · · · · · · · · · · ·	
 Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code Segregation Code 	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A SW2 Clear of living quarters. SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
\cdot Transport in bulk according to Annex II of MARPOL73/78 and	ud the IBC Code Not applicable.
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
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· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

• Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

· Sara	
· Section 313 (Specific toxic chemical listings):	
7697-37-2 nitric acid	
· TSCA (Toxic Substances Control Act):	
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
None of the ingredients is listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
None of the ingredients is listed.	
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	
• GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).	
· Hazard pictograms	



· Signal word Warning · Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. · Precautionary statements P264 Wash thoroughly after handling. P280 Wear eye protection / face protection. P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label). P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P337+P313 If eye irritation persists: Get medical advice/attention. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other inform<u>ation</u>

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

us —

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certiprep Printing date 03/11/2024

Product Name: 1000 µg/mL Zirconium

- · Department issuing SDS: product safety department · Contact: Spex CertiPrep, LLC. 1-732-549-7144 · Date of preparation / last revision 03/11/2024 · Abbreviations and acronyms: ADDR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LCS0: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic TBT: Persistent, Bioaccumulative and Toxic vpvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit

- REL: Recommended Exposure Limit Skin Irritation 2: Skin corrosion/irritation Category 2 Eye Irritation 2A: Serious eye damage/eye irritation Category 2A

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Reviewed on 03/07/2024