



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

#### SECTION 1

##### CHEMICAL IDENTIFICATION OF THE SUBSTANCE/PREPARATION

**NAME:** Alternate Metals Set—Multi-Elements Standard –  
This product is a two bottle set consisting of:

**Bottle #1: MN-4 :** 500 ppm each of Calcium and Sodium; and 100 ppm each of Magnesium and Potassium, all in 2% Nitric Acid.

**Bottle #2: WP-11:** 20 ppm each of Aluminum, Iron and Vanadium; 10 ppm each of Cobalt, Copper, Manganese, Nickel and Zinc; and 5 ppm each of Antimony, Beryllium and Thallium, all in 2% Nitric Acid.

**CHEMICAL FAMILY:** Dilute acid solution

**COMMON NAME OR SYNONYMS:** None

**SPEX CERTIPREP CATALOG NUMBER:** AM-SET

Manufacturer/Supplier  
SPEX CERTIPREP  
203 Norcross Avenue  
Metuchen, NJ 08840

SPEX CERTIPREP LTD  
2 Dalston Gardens  
Stanmore, Middlesex HA7 1BQ  
England  
Tel: (0) 20 8204 6656

#### SECTION 2

##### COMPOSITION/INFORMATION ON INGREDIENTS

#### HAZARDOUS:

MATERIAL	%	TLV UNITS	CAS #	EINECS
HNO <sub>3</sub>	~2	5 mg/m <sup>3</sup>	[7697-37-2]	(231-714-2)

#### NONHAZARDOUS:

Water	~98	N/A	[7732-18-5]	
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#### SECTION 3

##### HAZARDS IDENTIFICATION

Corrosive. Harmful by ingestion. Irritating to the eyes and skin upon contact.

#### SECTION 4

##### FIRST AID MEASURES

*General:* Remove contaminated clothing, wash thoroughly before reuse.

*Eyes:* Flush with water for at least 15 minutes occasionally lifting upper and lower eyelids.

*Skin:* Remove contaminated clothing and flush with water thoroughly. *Inhalation:* Move to

fresh air. Consult doctor if symptoms persist. *Ingestion:* Get immediate medical help. If the patient is conscious, give large quantities of water.

#### SECTION 5

##### FIRE FIGHTING MEASURES

Flash Point: Not applicable.

Extinguishing media: Appropriate to surrounding fire conditions.

Special Hazards and Procedure: Oxides of Nitrogen can be released in case of fire.

Protective Equipment: Wear self contained breathing apparatus and full protective suit.

#### SECTION 6

##### ACCIDENTAL RELEASE MEASURES

Ventilate area. Wear protective equipment. Do not allow to enter drainage systems or water ways. Dilute spill with water and neutralize with soda ash, limestone etc. Wipe up and put into a sealed container for proper disposal. Wash spill site with water after material pick up is complete. Wear chemical resistant glasses, gloves and clothing.

#### SECTION 7

##### HANDLING & STORAGE

Ensure good ventilation/exhaustion at work place. Have an immediate availability of an eye wash in case of emergency. Store at room temperature. Keep the container tightly closed.

#### SECTION 8

##### EXPOSURE CONTROLS/PERSONAL PROTECTION

Wear goggles, protective apron and acid resistant gloves. Use under fume hood. In case of brief exposure, use MSHA/NIOSH approved respirator.

#### SECTION 9

##### PHYSICAL & CHEMICAL PROPERTIES

Form:	Liquid
Appearance & odor:	Transparent with acrid odor
Specific Gravity:	Approximately 1.0
pH:	1 to 2
Melting point:	n/a
Boiling Point:	~100C
Solubility in water:	Miscible
Danger of Explosion:	Not explosive
Self-ignitability:	Not self igniting

AM-SET cont'd

**SECTION 10**  
**STABILITY & REACTIVITY**

Stability: Stable under normal storage and use.  
Reactivity: Reacts with strong alkali, various metals, and organic substances.  
Hazardous Decomposition Products: Toxic fumes under conditions of fire.  
Hazardous Polymerization: Will not occur.

**SECTION 11**  
**TOXICOLOGICAL INFORMATION**

May produce caustic effect on skin, mucous membranes and eyes. Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

**TOXICITY DATA:**

Concentrated HNO<sub>3</sub>—RTECS#-QU5775000  
orl-hmn LDLo: 430 mg/kg  
unk-man LDLo: 110 mg/kg

**SECTION 12**  
**ECOLOGICAL INFORMATION**

Do not allow product to reach ground water, water bodies or sewage system.

**SECTION 13**  
**DISPOSAL CONSIDERATIONS**

Contact local Hazardous or Chemical waste disposal agency for regulations.

**SECTION 14**  
**TRANSPORT INFORMATION**

**Air:**  
CLASS 8  
UN/ID # 3264  
Packing Group: III  
Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)

**Ground:**  
CLASS 8  
UN/ID Number: 3264  
Packing Group: III  
Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)

**SECTION 15**  
**REGULATORY INFORMATION**

USA:  
SARA: Subject to the reporting requirements of Section 313 of SARA Title III and of 40 CFR 372.  
Components of this solution are reported in EPA TSCA Inventory List  
WHMIS Classification (Canada): CLASS E  
EC Guidelines:  
C: Corrosive  
Risk Phrases:  
34 - Causes burns  
Safety Phrases:  
36/37/39 - Wear suitable protective clothing, gloves, and eye/face protection  
26 - in case of contact with eyes, rinse immediately with plenty of water and seek medical attention.  
45 - in case of accident or if you feel unwell, seek medical advice immediately.

**SECTION 16**  
**OTHER INFORMATION**

SPEX CERTIPREP ASSUMES NO RESPONSIBILITY AND MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN. INDICATED SAFETY MEASURES MAY NOT REFLECT ALL APPROPRIATE SAFETY MEASURES. SPEX CERTIPREP ASSUMES THAT ONLY QUALIFIED INDIVIDUALS, TRAINED AND FAMILIAR WITH PROCEDURES SUITABLE TO THIS PRODUCT, WILL HANDLE THIS PRODUCT.

**References:**

NIOSH/OSHA, Occupational Health Guideline for Nitric Acid, (Sept.1978)  
The Sigma/Aldrich Library of Chemical Safety Data, Ed.I, (1985)  
Registry of Toxic Effects of Chemical Substances, 1981-82  
Patty's Industrial Hygiene and Toxicology, 3<sup>rd</sup> Revised Edition, Vol. 2A, 1981  
Threshold Limit Values and Biological Exposure Indices for 1988-89, ACGIH  
Dangerous properties of Industrial Materials by N.Irving Sax and Richard J. Lewis, Sr.(Ninth Edition) \*

**Date:** August 4, 2008