SPECTRASCAN®

MATERIAL SAFETY DATA SHEET
according to EC Directive 2001/58/EC

SS-1168; SS-1268; SS-1568

Revision Number 1, Revision Date April 25, 2007

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product code SS-168 V
Product name 1000 ug/mL Vanadium
Common Name Vanadium in Dilute Nitric Acid
Manufacturer, importer, supplier Teknolab
P.O. Box 33
1411 Kolbotn
Norway
Tel: + 47 66 81 34 70
Fax: + 47 66 81 34 71
Web: www.spectrascan.no
Emergency telephone number 800-424-9300 CHEMTREC (24 hrs)

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS	Chemical Name	% Weight	ACGIH*	OSHA*
7732-18-5	Water	~94-98	N/A	N/A
7697-37-2	Nitric Acid	~1-5	2 ppm TWA	2 ppm TWA; 5 mg/m3 TWA
1314-62-1	Vanadium pentoxide	~0.1-1	0.05 mg/m3 TWA (dust or fume, respirable fraction, as V2O5)	N/A

* ACGIH - Occupational Exposure Limits - TWAs
* OSHA - Final PELs - Time Weighted Averages (TWAs)

3. HAZARDS IDENTIFICATION

Emergency Overview
- Vapours may be irritating to eyes, nose, throat, and lungs
- Corrosive

Eye contact	• Contact with eyes may cause irritation
Skin contact	• Substance may cause slight skin irritation
Inhalation	• May cause irritation of respiratory tract
Ingestion	• Harmful if swallowed

4. FIRST AID MEASURES

General advice	• Show this safety data sheet to the doctor in attendance
Skin contact	• Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes • Consult a physician if necessary
Eye contact	• Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes • Keep eye wide open while rinsing • If eye irritation persists, consult a specialist
Inhalation	• Move to fresh air in case of accidental inhalation of vapours • If breathing is difficult, give oxygen • Consult a physician if necessary
Ingestion	• Call a physician or Poison Control Centre immediately • If swallowed, seek medical advice immediately and show this container or label • If conscious, drink plenty of water

5. FIRE-FIGHTING MEASURES

Flash point	NA
Suitable extinguishing media	• Use extinguishing measures that are appropriate to local circumstances and the surrounding environment
Specific hazards	• Thermal decomposition can lead to release of irritating gases and vapours
Specific methods	• Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations
Special protective equipment for firefighters	• As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear
NFPA (National Fire Protection Association)	• Health - 2 • Fire Hazard - 0 • Reactivity - 0
Under conditions giving incomplete combustion, hazardous gases produced may consist of:	• nitrogen oxides (NOx).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	• Evacuate personnel to safe areas • Keep people away from and upwind of spill/leak • Wear personal protective equipment • Ensure adequate ventilation
Environmental precautions	• Prevent further leakage or spillage if safe to do so • Prevent product from entering drains
Methods for cleaning up	• Dam up • Neutralize with lime milk or soda and flush with plenty of water • Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container • After cleaning, flush away traces with water

7. HANDLING AND STORAGE

Handling

Technical measures/Precautions	• Use only in area provided with appropriate exhaust ventilation
Safe handling advice	• Wear personal protective equipment

Storage

Technical measures/Precautions	• Keep in properly labelled containers • Store at room temperature in the original container • Keep containers tightly closed in a dry, cool and well-ventilated place
Incompatible products	• organic materials • reducing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protective equipment	
Hand protection	• impervious gloves
Eye protection	• tightly fitting safety goggles
Respiratory protection	• Ensure adequate ventilation
Skin and body protection	• Chemical resistant apron • Lab coat
Hygiene measures	• When using, do not eat, drink or smoke • Regular cleaning of equipment, work area and clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

Form	liquid.
Appearance	clear
Colour	yellow.
Odour	None.

Important Health Safety and Environmental Information

pH	0 to 2
Boiling point/range	100°C
Flash point	N/A
Vapour pressure	NA.
Water solubility	miscible.

10. STABILITY AND REACTIVITY

Stability	• Stable under normal conditions • Hazardous polymerisation does not occur
Materials to avoid	• organic materials • reducing agents
Hazardous decomposition products	• nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Component Information

CAS	Chemical Name	% Weight	LD50/oral/rat =	LD50/dermal/rat =
7732-18-5	Water	~94-98	N/A	N/A
7697-37-2	Nitric Acid	~1-5	Inhalation LC50 Rat: 130 mg/kg/4H	Inhalation LC50 Rat: 130 mg/kg/4H
1314-62-1	Vanadium pentoxide	~0.1-1	Oral LD50 Rat: 10 mg/kg	Oral LD50 Rat: 10 mg/kg

Product Information

Local effects	• Poison
Skin irritation	May cause skin irritation and/or dermatitis.
Eye irritation	May cause eye irritation with susceptible persons.
Inhalation	May cause irritation of respiratory tract.
Ingestion	If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
Chronic toxicity	Avoid repeated exposure. Chronic exposure may cause:. conjunctivitis, rhinitis, and irritation of respiratory tract.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Component Information

CAS	Chemical Name	% Weight	EFAD*	EFFSD*	EMD - Ecotoxicity*
7732-18-5	Water	~94-98	N/A	N/A	N/A
7697-37-2	Nitric Acid	~1-5	N/A	N/A	N/A
1314-62-1	Vanadium pentoxide	~0.1-1	N/A	N/A	N/A

* EFAD - Ecotoxicity - Freshwater Algae Data
* EFFSD - Ecotoxicity - Freshwater Fish Species Data
* EMD - Ecotoxicity - Microtox Data

Product Information

Do not allow material to contaminate ground water or sewage system

Other information

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products	• In accordance with local and national regulations
Contaminated packaging	• Empty containers should be taken for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION

DOT

UN-No UN3264 / Class 8
Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s
Packing group III

IATA-DGR

UN-No UN3264 / Class 8
Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s
Packing group III

15. REGULATORY INFORMATION

U.S. INVENTORIES:

CAS	Chemical Name	% Weight	CPCL*	NJRTK*	CERCLA/SARA*
7732-18-5	Water	~94-98	N/A	N/A	N/A
7697-37-2	Nitric Acid	~1-5	N/A	sn 1356	1000 lb final RQ; 454 kg final RQ
1314-62-1	Vanadium pentoxide	~0.1-1	carcinogen, initial date 2/11/05	sn 1993	1000 lb final RQ; 454 kg final RQ

* CPCL - California - Proposition 65 - Carcinogens List
* NJRTK - New Jersey - Department of Health RTK List
* CERCLA/SARA - Hazardous Substances and their Reportable Quantities
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INTERNATIONAL INVENTORIES:

CAS	Chemical Name	% Weight	WHMIS*	EINECCS - European Union*
7732-18-5	Water	~94-98	Uncontrolled product according to WHMIS classification criteria	231-791-2
7697-37-2	Nitric Acid	~1-5	C, E (including 60%, 61.3%, 63%, 67%, 67.18%, 70%, 90%); E (10%)	231-714-2
1314-62-1	Vanadium pentoxide	~0.1-1	N/A	215-239-8

* WHMIS - Canada - WHMIS - Classifications of Substances
* EINECCS - European Union - European inventory of Existing Commercial Chemical Substances (EINECCS)
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16. OTHER INFORMATION

The above information is believed to be accurate and represents the best information available to us. It has been compiled from the data presented in various technical publications and our experience and should only be used as a guide for handling this product. It is the user's responsibility to determine the suitability of this information for their particular purposes. We assume that only qualified individuals, trained and familiar with procedures suitable to this product will handle this material. Teknolab assumes no responsibility and shall not be held liable for any damage resulting from misuse of this product.