

# Safety Data Sheet

acc. to 29 CFR 1910.1200 App D

## Vanadium Reducing Reagent

Version number: 1.1

Date of compilation: 2024-01-23

### SECTION 1: Identification

#### 1.1 Product identifier

Trade name **Vanadium Reducing Reagent**  
Product code(s) VR2000SS

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses laboratory and analytical use

#### 1.3 Details of the supplier of the safety data sheet

AquaPhoenix Scientific, Inc  
860 Gitts Run Road  
Hanover PA 17331  
United States

Telephone: (717) 632-1291  
e-mail: info@aquaphoenixsci.com

#### 1.4 Emergency telephone number

Emergency information service ChemTel Inc. (800) 255-3924 (North America)  
+1 (813) 248-0585 (International)

### SECTION 2: Hazard(s) identification

#### 2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Section	Hazard class	Category	Hazard class and category	Hazard statement
A.3	serious eye damage/eye irritation	2A	Eye Irrit. 2A	H319
A.6	carcinogenicity	1A	Carc. 1A	H350

For full text of abbreviations: see SECTION 16.

#### 2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

- Signal word danger

- Pictograms

GHS07, GHS08



- Hazard statements

H319 Causes serious eye irritation.  
H350 May cause cancer.



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### SECTION 4: First-aid measures

#### 4.1 Description of first-aid measures

##### General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

##### Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

##### Following skin contact

Wash with plenty of soap and water.

##### Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

##### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

#### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

#### 4.3 Indication of any immediate medical attention and special treatment needed

none

### SECTION 5: Fire-fighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Water spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO<sub>2</sub>)

##### Unsuitable extinguishing media

Water jet

#### 5.2 Special hazards arising from the substance or mixture

#### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Coordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

##### For non-emergency personnel

Remove persons to safety.

##### For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

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### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

### 6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas. Never add water to this product.

- Handling of incompatible substances or mixtures

Do not mix with alkali.

- Keep away from

Caustic solutions

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

### 7.2 Conditions for safe storage, including any incompatibilities

Control of the effects

Protect against external exposure, such as  
frost

### 7.3 Specific end use(s)

See section 16 for a general overview.

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### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

##### Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Ceiling-C [ppm]	Ceiling-C [mg/m <sup>3</sup> ]	Notation	Source
US	sulfuric acid	7664-93-9	PEL (CA)		0.1		3				Cal/ OSHA PEL
US	sulfuric acid	7664-93-9	REL		1 (10 h)						NIOSH REL
US	sulfuric acid	7664-93-9	PEL		1						29 CFR 1910.1000
US	sulfuric acid	7664-93-9	TLV®		0.2					t	ACGIH® 2023

##### Notation

Ceiling-C  
STEL

t  
TWA

ceiling value is a limit value above which exposure should not occur  
short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)  
thoracic fraction  
time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

##### Relevant DNELs of components

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
sulfuric acid	7664-93-9	DNEL	0.05 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
sulfuric acid	7664-93-9	DNEL	0.1 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - local effects

##### Relevant PNECs of components

Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
sulfuric acid	7664-93-9	PNEC	0.003 mg/l	aquatic organisms	freshwater	short-term (single instance)
sulfuric acid	7664-93-9	PNEC	0 mg/l	aquatic organisms	marine water	short-term (single instance)
sulfuric acid	7664-93-9	PNEC	8.8 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
sulfuric acid	7664-93-9	PNEC	0.002 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
sulfuric acid	7664-93-9	PNEC	0.002 mg/kg	aquatic organisms	marine sediment	short-term (single instance)

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### 8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	liquid
Color	blue
Particle	not relevant (liquid)
Odor	characteristic

#### Other safety parameters

pH (value)	<1 (20 °C) (acid)
Melting point/freezing point	not determined
Initial boiling point and boiling range	> 100 °C
Flash point	not determined
Evaporation rate	not determined
Flammability (solid, gas)	not relevant, (fluid)

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Vapor pressure	< 23.7 mmHg at 25 °C
Density	not determined
Vapor density	this information is not available
Relative density	information on this property is not available

### Solubility(ies)

- Water solubility	miscible in any proportion
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### Partition coefficient

- n-octanol/water (log KOW)	this information is not available
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Auto-ignition temperature	not determined
Viscosity	not determined
Explosive properties	none
Oxidizing properties	none

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

### 10.2 Chemical stability

See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

### 10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

### 10.5 Incompatible materials

There is no additional information.

Release of flammable materials with:

Light metals (due to the release of hydrogen in an acid/alkaline medium)

### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

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### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

Test data are not available for the complete mixture.

##### Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

##### Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

##### Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity estimate (ATE) of components			
Name of substance	CAS No	Exposure route	ATE
sulfuric acid	7664-93-9	inhalation: vapor	3 mg <sub>i</sub> /4h
sulfuric acid	7664-93-9	inhalation: dust/mist	0.85 mg <sub>i</sub> /4h
sodium phosphate, dibasic	7558-79-4	inhalation: dust/mist	>0.83 mg <sub>i</sub> /4h

##### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

##### Serious eye damage/eye irritation

Causes serious eye irritation.

##### Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

##### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

##### Carcinogenicity

May cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans			
Name of substance	CAS No	Classification	Number
sulfuric acid	7664-93-9	1	

##### Legend

1 Carcinogenic to humans

National Toxicology Program (United States): Report on Carcinogens			
Name of substance	CAS No	Classification	Number
sulfuric acid	7664-93-9	Known to be a human carcinogen	9th Report on Carcinogens

##### Reproductive toxicity

Shall not be classified as a reproductive toxicant.



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### Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

### Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

## SECTION 12: Ecological information

### 12.1 Toxicity

Harmful to aquatic life with long lasting effects.

Aquatic toxicity (acute) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
sulfuric acid	7664-93-9	LC50	<28 mg/l	fish	96 h
sulfuric acid	7664-93-9	EC50	>100 mg/l	aquatic invertebrates	48 h
sulfuric acid	7664-93-9	ErC50	>100 mg/l	algae	72 h
vanadium trichloride	7718-98-1	LC50	4 mg/l	fish	96 h
vanadium trichloride	7718-98-1	EC50	3.5 mg/l	aquatic invertebrates	48 h
vanadium trichloride	7718-98-1	ErC50	17 mg/l	algae	72 h
sodium phosphate, di-basic	7558-79-4	LC50	>100 mg/l	fish	96 h
sodium phosphate, di-basic	7558-79-4	EC50	>100 mg/l	aquatic invertebrates	48 h
sodium phosphate, di-basic	7558-79-4	ErC50	>100 mg/l	algae	72 h

Aquatic toxicity (chronic) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
vanadium trichloride	7718-98-1	LC50	1.88 mg/l	fish	28 d
vanadium trichloride	7718-98-1	EC50	2,719 mg/l	microorganisms	3 h
sodium phosphate, di-basic	7558-79-4	EC50	>1,000 mg/l	microorganisms	3 h

### 12.2 Persistence and degradability

Data are not available.

### 12.3 Bioaccumulative potential

Data are not available.

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### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB. Does not contain a PBT-/vPvB-substance in a concentration of  $\geq 0.1\%$ .

### 12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of  $\geq 0.1\%$ .

### 12.7 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packages

Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

#### Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

## SECTION 14: Transport information

14.1	UN number	not subject to transport regulations
14.2	UN proper shipping name	not relevant
14.3	Transport hazard class(es)	none
14.4	Packing group	not assigned
14.5	Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations
14.6	Special precautions for user	There is no additional information.
14.7	Transport in bulk according to IMO instruments	The cargo is not intended to be carried in bulk.

### Information for each of the UN Model Regulations

#### Transport of dangerous goods by road or rail (49 CFR US DOT) - Additional information

Not subject to transport regulations.

#### International Maritime Dangerous Goods Code (IMDG) - Additional information

Not subject to IMDG.

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### International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Not subject to ICAO-IATA.

### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations specific for the product in question

##### National regulations (United States)

##### Toxic Substance Control Act (TSCA)

all ingredients are listed (ACTIVE) or exempt from listing

##### Superfund Amendment and Reauthorization Act (SARA TITLE III )

- The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities				
Name of substance	CAS No	Notes	Reportable quantity (pounds)	Threshold planning quantity (pounds)
sulfuric acid	7664-93-9		1,000	1000

- Specific Toxic Chemical Listings (EPCRA Section 313)

Toxics Release Inventory: Specific Toxic Chemical Listings			
Name of substance	CAS No	Remarks	Effective date
sulfuric acid	7664-93-9	acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size	1986-12-31
vanadium trichloride			1999-12-31

##### Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

- List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Name of substance	CAS No	Remarks	Statutory code	Final RQ pounds (Kg)
sulfuric acid	7664-93-9		1	1000 (454)
sodium phosphate, dibasic	7558-79-4		1	5000 (2270)

##### Legend

1 "1" indicates that the statutory source is section 311(b)(2) of the Clean Water Act

##### Clean Air Act

none of the ingredients are listed

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### Right to Know Hazardous Substance List

- Hazardous Substance List (NJ-RTK)

Name of substance	CAS No	Remarks	Classifications
sulfuric acid	7664-93-9		CA CO R2
sodium phosphate, dibasic	7558-79-4		
vanadium trichloride	7718-98-1		CO
vanadium trichloride			

#### Legend

CA Carcinogenic  
CO Corrosive  
R2 Reactive - Second Degree

### California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

none of the ingredients are listed

### Industry or sector specific available guidance(s)

#### NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association.

Category	Rating	Description
Chronic	*	chronic (long-term) health effects may result from repeated overexposure
Health	2	temporary or minor injury may occur
Flammability	0	material that will not burn under typical fire conditions
Physical hazard	0	material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive
Personal protection	-	

#### NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	0	material that will not burn under typical fire conditions
Health	3	material that, under emergency conditions, can cause serious or permanent injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard		

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### National inventories

Country	Inventory	Status
AU	AIIC	all ingredients are listed
CA	DSL	not all ingredients are listed
CA	NDSL	not all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
VN	NCI	all ingredients are listed
US	TSCA	all ingredients are listed (ACTIVE)

#### Legend

AIIC	Australian Inventory of Industrial Chemicals
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NCI	National Chemical Inventory
NDSL	Non-domestic Substances List (NDSL)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

### 15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

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### SECTION 16: Other information, including date of preparation or last revision

#### Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.1		Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200): change in the listing (table)	yes
2.2	- Signal word: warning	- Signal word: danger	yes
2.2		- Pictograms: change in the listing (table)	yes
2.2		- Hazard statements: change in the listing (table)	yes
2.2		- Precautionary statements: change in the listing (table)	yes
2.2		- Hazardous ingredients for labelling: sulfuric acid	yes
2.3		Hazards not otherwise classified: change in the listing (table)	yes
2.3	Endocrine disrupting properties: Does not contain an endocrine disruptor (EDC) in a concentration of $\geq 0.1\%$ .	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) in a concentration of $\geq 0.1\%$ .	yes
3.2		Description of the mixture: change in the listing (table)	yes
5.2	Special hazards arising from the substance or mixture: Substance or mixture corrosive to metals.	Special hazards arising from the substance or mixture	yes
7.2	Managing of associated risks		yes
7.2	- Corrosive conditions: Store in corrosive resistant container with a resistant inner liner.		yes
7.2	- Packaging compatibilities: Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.		yes
8.1		Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)	yes
8.1		Relevant DNELs of components: change in the listing (table)	yes
8.1		Relevant PNECs of components: change in the listing (table)	yes
10.1	Reactivity: Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". Substance or mixture corrosive to metals.	Reactivity: Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".	yes

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11.1	Acute toxicity: Shall not be classified as acutely toxic.GHS of the United Nations, annex 4: May be harmful if inhaled.	Acute toxicity: Shall not be classified as acutely toxic.	yes
11.1		Acute toxicity estimate (ATE) of components: change in the listing (table)	yes
11.1	Carcinogenicity: Shall not be classified as carcinogenic.	Carcinogenicity: May cause cancer.	yes
11.1		IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: change in the listing (table)	yes
11.1		National Toxicology Program (United States): Report on Carcinogens: change in the listing (table)	yes
12.1	Toxicity: Toxic to aquatic life.	Toxicity: Harmful to aquatic life with long lasting effects.	yes
12.1		Aquatic toxicity (acute) of components: change in the listing (table)	yes
12.1		Aquatic toxicity (chronic) of components: change in the listing (table)	yes
12.6	Endocrine disrupting properties: Does not contain an endocrine disruptor (EDC) in a concentration of $\geq 0.1\%$ .	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) in a concentration of $\geq 0.1\%$ .	yes
13.1	Waste treatment of containers/packages: Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.	Waste treatment of containers/packages: Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.	yes
14.1	UN number	UN number: not subject to transport regulations	yes
14.1	DOT: UN 3264		yes
14.1	IMDG-Code: UN 3264		yes
14.1	ICAO-TI: UN 3264		yes
14.2	DOT: Corrosive liquid, acidic, inorganic, n.o.s.		yes
14.2	IMDG-Code: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.		yes
14.2	ICAO-TI: Corrosive liquid, acidic, inorganic, n.o.s.		yes
14.2	Technical name (hazardous ingredients): vanadium trichloride, sodium phosphate, dibasic		yes
14.3	DOT: 8		yes

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14.3	IMDG-Code: 8		yes
14.3	ICAO-TI: 8		yes
14.4	DOT: III		yes
14.4	IMDG-Code: III		yes
14.4	ICAO-TI: III		yes
14.7	Particulars in the shipper's declaration: UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (vanadium trichloride, sodium phosphate, dibasic, solution), 8, III		yes
14.7	Reportable quantity (RQ): 50,100,200 lbs (22,745,491 kg) (sodium phosphate, dibasic)		yes
14.7	Danger label(s): 8		yes
14.7		Danger label(s): change in the listing (table)	yes
14.7	Special provisions (SP): IB3, T7, TP1, TP28		yes
14.7	ERG No: 154		yes
14.7	Marine pollutant: -		yes
14.7	Danger label(s): 8		yes
14.7		Danger label(s): change in the listing (table)	yes
14.7	Special provisions (SP): 223, 274		yes
14.7	Excepted quantities (EQ): E1		yes
14.7	Limited quantities (LQ): 5 L		yes
14.7	EmS: F-A, S-B		yes
14.7	Stowage category: A		yes
14.7	Segregation group: 1 - Acids		yes



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14.7	Danger label(s): 8		yes
14.7		Danger label(s): change in the listing (table)	yes
14.7	Special provisions (SP): A3		yes
14.7	Excepted quantities (EQ): E1		yes
14.7	Limited quantities (LQ): 1 L		yes
15.1		Clean Air Act: change in the listing (table)	yes
14.2	UN proper shipping name	UN proper shipping name: not relevant	yes
14.3	Transport hazard class(es)	Transport hazard class(es): none	yes
14.4	Packing group	Packing group: not assigned	yes
14.7	Transport of dangerous goods by road or rail (49 CFR US DOT) - Additional information	Transport of dangerous goods by road or rail (49 CFR US DOT) - Additional information: Not subject to transport regulations.	yes
14.7	International Maritime Dangerous Goods Code (IMDG) - Additional information	International Maritime Dangerous Goods Code (IMDG) - Additional information: Not subject to IMDG.	yes
14.7	International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information	International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information: Not subject to ICAO-IATA.	yes
15.1		The List of Extremely Hazardous Substances and Their Threshold Planning Quantities: change in the listing (table)	yes
15.1		Toxics Release Inventory: Specific Toxic Chemical Listings: change in the listing (table)	yes
15.1		List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4): change in the listing (table)	yes
15.1	Clean Air Act	Clean Air Act: none of the ingredients are listed	yes
15.1		Hazardous Substance List (NJ-RTK): change in the listing (table)	yes
15.1		NPCA-HMIS® III: change in the listing (table)	yes

# Safety Data Sheet

acc. to 29 CFR 1910.1200 App D

## Vanadium Reducing Reagent

Version number: 1.1

Date of compilation: 2024-01-23

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
29 CFR 1910.1000	29 CFR 1910.1000, Tables Z-1, Z-2, Z-3 - Occupational Safety and Health Standards: Toxic and Hazardous Substances (permissible exposure limits)
49 CFR US DOT	49 CFR U.S. Department of Transportation
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Acute Tox.	Acute toxicity
ATE	Acute Toxicity Estimate
Cal/OSHA PEL	California Division of Occupational Safety and Health (Cal/OSHA): Permissible Exposure Limits (PELs)
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
ED	Endocrine disruptor
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
NIOSH REL	National Institute for Occupational Safety and Health (NIOSH): Recommended Exposure Limits (RELs)
NLP	No-Longer Polymer
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OSHA	Occupational Safety and Health Administration (United States)

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Abbr.	Descriptions of used abbreviations
PBT	Persistent, Bioaccumulative and Toxic
PEL	Permissible exposure limit
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STEL	Short-term exposure limit
TLV®	Threshold Limit Values
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative

### Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

### List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H350	May cause cancer.

### Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.