SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard (29 CFR 1910.1200)

Revision date 06-December-2024 **Revision Number** 2

1. Identification

Product identifier

Product Name VANADIUM PENTOXIDE, POWDER, REAGENT

Other means of identification

Product Code(s) V1010

UN number or ID number UN2862

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use No information available

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address
Spectrum Chemical Mfg. Corp.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300

2. Hazard(s) identification

Classification

Acute toxicity - Oral	Category 2
Acute toxicity - Dermal	Category 1
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3

Category 3 Target organ effects: Respiratory irritation.	
Specific target organ toxicity (repeated exposure)	Category 1

Hazards not otherwise classified (HNOC)
Not applicable.

Label elements

Danger

Hazard statements
Fatal if swallowed.
Fatal in contact with skin.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
Suspected of causing genetic defects.
Suspected of causing cancer.
Suspected of damaging fertility or the unborn child.
May cause respiratory irritation.
Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements - Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/clothing and eye/face protection.
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Do not get in eyes, on skin, or on clothing.
Use only outdoors or in a well-ventilated area.
Do not breathe dust/fume/gas/mist/vapors/spray.

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see .? on this label).
Specific treatment (see .? on this label).
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of water and soap.
Immediately call a POISON CENTER or doctor.
Take off immediately all contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF SWALLOWED: Immediately call a POISON CENTER or doctor.
Rinse mouth.

Precautionary Statements - Storage
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other information

No information available.

3. Composition/information on ingredients

Substance

Chemical name	CAS No.	Weight-%
Vanadium Pentoxide	1314-62-1	100

4. First-aid measures

Description of first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.

Inhalation Remove to fresh air. IF exposed or concerned: Get medical advice/attention. Get medical attention immediately if symptoms occur. If breathing has stopped, give artificial respiration. Get medical attention immediately. If symptoms persist, call a physician.

Eye contact Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area.

Skin contact Get immediate medical attention. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Ingestion Get immediate medical attention. Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Avoid contact with skin, eyes or clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Use personal protective equipment as required. See section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.

Effects of Exposure May cause adverse reproductive effects - such as birth defect, miscarriages, or infertility. Mutagenic effects. Causes damage to organs through prolonged or repeated exposure.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Hazardous combustion products Chloroform does not burn, but may decompose upon heating to produce the following if involved in a fire: carbon monoxide, carbon dioxide, hydrogen chloride and chlorine. bismuth oxides.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid generation of dust. Do not breathe dust.

Other information Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and storage

Precautions for safe handling

Technical Measures/Precautions: Provide sufficient air exchange and/or exhaust in work rooms Avoid dust formation Keep away from incompatible materials

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Take off contaminated clothing and wash before reuse. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Avoid breathing vapors or mists. In case of insufficient ventilation, wear suitable respiratory equipment.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Regular cleaning of equipment, work area and clothing is recommended. Avoid breathing dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

Incompatible Materials: Strong acids Strong oxidizing agents Alkali Metals Lithium Sodium Potassium Chlorine trifluoride peroxy formic acid Combustible materials Halogens Strong bases

8. Exposure controls/personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Impervious clothing. Chemical resistant apron.

Respiratory protection Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Color	yellow-orange; red
Odor	Odorless
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH	No data available	None known
pH (as aqueous solution)		None known
Melting point / freezing point	690 °C / 1274.0 °F	None known
Initial boiling point and boiling range	1750 °C / 3182.0 °F	None known
Flash point	No data available	None known
Evaporation rate	no data available	None known
Flammability	no data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Relative vapor density	No data available	None known
Relative density	3.357	None known
Water solubility	Partially soluble in cold water	None known
Solubility(ies)	Soluble in Acetone	

	Soluble in acids	None known
Partition coefficient	2.97	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	no data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	181.90 g/mol
VOC content	No information available
Liquid Density	No information available
Bulk density	1.2-1.3 g/cm3

10. Stability and reactivity

Reactivity No information available.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid Excessive heat.

Incompatible materials Strong acids. Strong bases. Strong oxidizing agents.

Hazardous decomposition products Spontaneous polymerisation.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation. (based on components).

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Skin contact Specific test data for the substance or mixture is not available. Fatal in contact with skin. (based on components). Causes skin irritation.

Ingestion Specific test data for the substance or mixture is not available. Fatal if swallowed. (based on components). Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. May cause redness and tearing of the eyes. Coughing and/ or wheezing.

Acute toxicity Fatal if swallowed. Fatal in contact with skin. Harmful by inhalation.

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Vanadium Pentoxide 1314-62-1	= 10 mg/kg (Rat)	= 50 mg/kg (Rabbit)	= 4.29 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes skin irritation.

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity Contains a known or suspected mutagen. Classification based on data available for ingredients. Suspected of causing genetic defects.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. Suspected of causing cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Vanadium Pentoxide 1314-62-1	-	Group 2B - Possibly carcinogenic to humans - Monograph 86 [2006]	-	-

Legend

IARC (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans

Reproductive toxicity Classification based on data available for ingredients. Suspected of damaging fertility or the unborn child.

STOT - single exposure May cause respiratory irritation.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard No information available.

Other adverse effects No information available.

Interactive effects No information available.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Vanadium Pentoxide 1314-62-1	-	LC50 (Rainbow trout, donaldson trout (Oncorhynchus mykiss), 96 h): 6.1 mg/l Mortality LC50 (Brook trout (Salvelinus fontinalis), 96h): 5.6-9.2 mg/l	-	LC50 (Dalphnia magna), 48 h: 1.52 mg/l Mortality

		Mortality LC50 (Fathead minnow (Pimephales promelas), 96 h): 13 mg/l Mortality		

Persistence and degradability No information available.

Bioaccumulation There is no data for this product.

Other adverse effects No information available.

13. Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. Transport information

DOT

UN number or ID number	UN2862
Proper shipping name	Vanadium pentoxide
Transport hazard class(es)	6.1
Special Provisions	III
Special Provisions	IB8, IP3, T1, TP33
DOT Marine Pollutant	I
Description	UN2862, Vanadium pentoxide, 6.1, III, Marine pollutant
Emergency Response Guide Number	151

TDG

UN/ID no.	UN2862
Proper shipping name	Vanadium pentoxide
Transport hazard class(es)	6.1
Packing Group	III
Description	UN2862, Vanadium pentoxide, 6.1, III

MEX

UN-No	UN2862
Proper Shipping Name	Vanadium pentoxide
Transport hazard class(es)	6.1
Packing Group	III
Description	UN2862, Vanadium pentoxide, 6.1, III

ICAO (air)

UN/ID no.	UN2862
Proper shipping name	Vanadium pentoxide
Transport hazard class(es)	6.1
Packing Group	III
Description	UN2862, Vanadium pentoxide, 6.1, III

IATA

UN number or ID number	UN2862
Proper shipping name	Vanadium pentoxide
Transport hazard class(es)	6.1
Packing group	III
Description	UN2862, Vanadium pentoxide, 6.1, III
ERG Code	6L

IMDG

UN number or ID number	UN2862
Proper shipping name	Vanadium pentoxide
Transport hazard class(es)	6.1
Packing group	III
EmS-No.	F-A, S-A
Marine pollutant	P
Description	UN2862, Vanadium pentoxide, 6.1, III, Marine pollutant

ADR

UN number or ID number	UN2862
Proper shipping name	Vanadium pentoxide
Transport hazard class(es)	6.1
Packing group	III
Special Provisions	600
Description	UN2862, Vanadium pentoxide, 6.1, III, (E), Environmentally Hazardous

RID

UN number or ID number	UN2862
Proper shipping name	Vanadium pentoxide
Transport hazard class(es)	6.1
Packing group	III
Special Provisions	600
Description	UN2862, Vanadium pentoxide, 6.1, III, Environmentally Hazardous

15. Regulatory information

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	This product complies with ENCS:
IECSC	This product complies with China:
KECL	Complies
PICCS	Complies
AIIC	All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).
NZIoC	Does not comply
TCSI	Does not comply

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

NZIoC - New Zealand Inventory of Chemicals
TCSI - Taiwan Chemical Substance Inventory

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Vanadium Pentoxide - 1314-62-1	1.0

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CAA (Clean Air Act)
This product does not contain any substances regulated as pollutants pursuant to Clean Air Act (CAA).

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Vanadium Pentoxide 1314-62-1	1000 lb final RQ 454 kg final RQ	

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:.

Chemical name	California Proposition 65
Vanadium Pentoxide - 1314-62-1	carcinogen

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

International Inventories

Chemical name	CAS No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	IECSC	AIIC	EINECS-No.
	1314-62-1	PresentACTIVE	Present KE-12750	Present	Present (1)-559	X	X	Present 215-239-8

U.S. Regulations

Chemical name	Massachusetts	M.A. EHS:	New Jersey	New Jersey - Environmental Hazardous Su	N.J.- Discharge Prevention:	New Jersey TCPA - EHS:	Pennsylvania	P.A. RTK - Environmental Hazard	P.A. RTK - Special Hazardous
Vanadium Pentoxide	Present		1993		Present		Environmental hazard Present (dust; fume)	Present	

Chemical name	Michigan - Critical Materials:	Michigan PSM HHC:	Minnesota - Hazardous Substance:	N.Y. Release - Hazardous Substances:	C.T. - Carcinogenic:
Vanadium Pentoxide			Present	1000 lb RQ 100 lb RQ	

Chemical name	Louisana Reportable Quantity List for Pollutants:	California Directors List of Hazardous Substances:	FDA - Food Additives Generally Recognized as Safe (GRAS):	FDA - Direct Food Additives	FDA - 21 CFR - Total Food Additives - List Sourced from EAFUS
Vanadium Pentoxide	1000lbfinal RQ 454kgfinal RQ	Present			

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

⚠WARNING: This product can expose you to chemicals including (see table and list below) which is (are) known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov. Safrole.

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemical name	CAS No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
	1314-62-1	carcinogen	Not Listed	Not Listed	Not Listed

CERCLA/SARA

CERCLA

TSCA

Chemical name	CAS No.	Hazardous Substances RQs	TPQ	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category
	1314-62-1	1000 lb final RQ 454 kg final RQ	100 lb lower TPQ 10000 lb upper TPQ 1000 lb EPCRA RQ	None	Vanadium compounds

U.S. TSCA

Chemical name	CAS No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
	1314-62-1	Not Applicable	Not Applicable

Canada

WHIMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Vanadium Pentoxide
1314-62-1 (100)

WHMIS 2015 Hazard Classification
Acute toxicity - Oral - Category 3: H301 Toxic if swallowed.; Acute toxicity - Inhalation - Category 4: H332 Harmful if inhaled.; Serious Eye Damage/Eye Irritation - Category 2: H319 Causes serious eye

irritation.; Carcinogenicity - Category 2: H351 Suspected of causing cancer.; Specific target organ toxicity - Repeated exposure - Category 1: H372 Causes damage to organs through prolonged or repeated exposure.

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

Chemical name	CAS No.	Canada (DSL)	Canada (NDSL)
	1314-62-1	Present	Not Listed

Chemical name	CAS No.	CEPA Schedule I - Toxic Substances
	1314-62-1	Present
Chemical name	**CAS No.**	**CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting**
	1314-62-1	Not listed

Chemical name	CAS No.	EU GHS - SV - CLP (1272/2008)
	1314-62-1	Acute toxicity - Oral - Acute Tox. 4: H302 Harmful if swallowed. (Minimum classification); Acute toxicity - Inhalation - Acute Tox. 4: H332 Harmful if inhaled. (Minimum classification); Germ cell mutagenicity - Muta. 2: H341 Suspected of causing genetic defects.; Reproductive Toxicity - Repr. 2: H361d Suspected of damaging the unborn child. (Hazard statements H360 and H361 indicate a general concern for effects on both fertility and development: May damage/Suspected of damaging fertility or the unborn child; According to the criteria, the general hazard statement can be replaced by the hazard statement indicating the specific effect of concern in accordance with section 1.1.2.1.2; When the other differentiation is not mentioned, this is due to evidence proving no such effect, inconclusive data or no data and the obligations in Article 4(3) shall apply for that differentiation); Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation.; Specific target organ toxicity - Repeated exposure - STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure. (No information to prove exclusion of certain routes of exposure); Hazardous to aquatic environment - chronic hazard - Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects.023-001-00-8

R-Phrases
R37 - Irritating to respiratory system
R63 - Possible risk of harm to the unborn child
R68 - Possible risk of irreversible effects
R20/22 - Harmful by inhalation and if swallowed
R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation
R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S -phrase(s)
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
S38 - In case of insufficient ventilation, wear suitable respiratory equipment
S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.
S37/39 - Wear suitable gloves and eye/face protection
S 1/2 - Keep locked up and out of the reach of children.
S36/37 - Wear suitable protective clothing and gloves

Chemical name	CAS No.	Classification according to Directive 67/548/EEC or 1999/45/EC	Concentration Limits:	Safety Phrases
Vanadium Pentoxide	1314-62-1	Xn; R20/22 Xi; R37 T; R48/23 N; R51-53 Repr.Cat.3; R63 Muta.Cat.3; R68	No information	S: (1/2)-36/37-38-45-61

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
Xn - Harmful
Xi - Irritant
T - Toxic
N - Dangerous for the environment

16. Other information

NFPA	**Health hazards** 2	**Flammability** 0	**Instability** 0	**Special hazards** -
HMIS	**Health hazards** 2 *	**Flammability** 0	**Physical hazards** 0	**Personal protection** X

Chronic Hazard Star Legend ** = Chronic Health Hazard*

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend
SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances
STOT: Specific Target Organ Toxicity
ATE: Acute Toxicity Estimate
LC50: 50% Lethal Concentration
LD50: 50% Lethal Dose

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Revision date 06-December-2024
Revision Note No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet