



SAFETY DATA SHEET

MATERION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Name of the substance	Vanadium oxide (V2O5) powder and pieces
Identification number	023-001-00-8 (Index number)
Synonyms	divanadiumpentaoxid * VANADIUM FUME (V2O5) * vanadium oxide * Vanadin(V) oxide * VANADIUM PENTOXIDE
Document number	2DD
Materion Code	2DD
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Version number	01

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

Identified uses	Not available.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name	Materion Advanced Chemicals Inc.
Address	407 N. 13th Street 1316 W. St. Paul Avenue Milwaukee, WI 53233 United States
Division	Milwaukee
Telephone	414.212.0257
e-mail	advancedmaterials@materion.com
Contact person	Noreen Atkinson

1.4. Emergency telephone number

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Acute toxicity, oral	Category 4	
Acute toxicity, inhalation	Category 4	
Germ cell mutagenicity	Category 2	H341 - Suspected of causing genetic defects.
Carcinogenicity	Category 2	
Reproductive toxicity (the unborn child)	Category 2	H361 - Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure	Category 3 respiratory tract irritation	H335 - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Category 1	H372 - Causes damage to organs through prolonged or repeated exposure.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard	Category 2	H411 - Toxic to aquatic life with long lasting effects.
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Hazard summary

Harmful by inhalation and if swallowed. Causes serious eye damage. May cause irritation to the respiratory system. Suspected of causing genetic defects. May cause harm to the unborn child. Possible risk of impaired fertility. Causes damage to organs through prolonged or repeated exposure. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: vanadium oxide

Hazard pictograms



Signal word

Danger

Hazard statements

H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H361	Suspected of damaging fertility or the unborn child.
H341	Suspected of causing genetic defects.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P308 + P313	IF exposed or concerned: Get medical advice/attention.
P301 + P312	IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.
P330	Rinse mouth.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTRE/doctor if you feel unwell.
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 CENTRE or doctor/physician.
P308 + P313	If exposed or concerned: Get medical advice/attention.
P391	Collect spillage.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal

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

None.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
vanadium oxide	100	1314-62-1 215-239-8	-	023-001-00-8	
Classification:	Eye Irrit. 2;H319, STOT SE 3;H335, Muta. 2;H341, Repr. 2;H361, STOT RE 1;H372, Aquatic Chronic 2;H411				

List of abbreviations and symbols that may be used above

CLP: Regulation No. 1272/2008.

DSD: Directive 67/548/EEC.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Community workplace exposure limit(s).

Composition comments The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information Get medical attention. Show this safety data sheet to the doctor in attendance.

4.1. Description of first aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Perform artificial respiration if breathing has stopped. Call a physician or poison control centre immediately.

Skin contact Wash skin thoroughly with soap and water for several minutes. Get medical attention immediately.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Ingestion Never give anything by mouth to an unconscious person. Rinse mouth thoroughly. Call a physician or poison control centre immediately.

4.2. Most important symptoms and effects, both acute and delayed Prolonged exposure may cause chronic effects. Severe eye irritation. Dusts may irritate the respiratory tract, skin and eyes. Coughing. Oedema. Proteinuria. Jaundice. Liver enlargement.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Not available.

5.2. Special hazards arising from the substance or mixture Not available.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear self-contained breathing apparatus and protective clothing.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Wear appropriate personal protective equipment.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid release to the environment.

6.3. Methods and material for containment and cleaning up Collect dust using a vacuum cleaner equipped with HEPA filter. Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4. Reference to other sections For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Avoid contact with eyes and prolonged skin contact. Avoid formation of dusts and aerosols. Wear appropriate personal protective equipment. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities Store locked up. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	MAK	0,05 mg/m ³	Respirable dust.
	STEL	0,25 mg/m ³	Respirable dust.

Belgium. Exposure Limit Values.

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³	Respirable fraction and fume.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Material	Type	Value
vanadium oxide (CAS 1314-62-1)	MAC	0,05 mg/m ³

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,5 mg/m ³	Dust.
		0,1 mg/m ³ 0,05 mg/m ³	Fume.

Czech Republic. OELs. Government Decree 361

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	Ceiling	0,1 mg/m ³	Dust and fume.
	TWA	0,05 mg/m ³	Dust and fume.

Denmark. Exposure Limit Values

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TLV	0,03 mg/m ³	Dust and fume.

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	Ceiling	0,05 mg/m ³	Respirable dust.
	TWA	0,2 mg/m ³	Total dust.

Finland. Workplace Exposure Limits

Material	Type	Value
vanadium oxide (CAS 1314-62-1)	TWA	0,02 mg/m ³

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	VME	0,05 mg/m ³	Dust and fume.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	AGW	0,03 mg/m ³	Inhalable fraction.
		0,005 mg/m ³	Respirable fraction.

Greece. OELs (Decree No. 90/1999, as amended)

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,5 mg/m ³	Respirable dust.
		0,05 mg/m ³	Inhalable dust.

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	STEL	0,2 mg/m ³	Respirable.
	TWA	0,05 mg/m ³	Respirable.

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,2 mg/m ³	Dust and fume.

Ireland. Occupational Exposure Limits

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³	Total inhalable dust.

Italy. Occupational Exposure Limits

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³	Inhalable fraction.

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,1 mg/m ³	Decomposition aerosol.

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	Ceiling	0,05 mg/m ³	Respirable fraction.
	TWA	0,2 mg/m ³	Inhalable fraction.

Netherlands. OELs (binding)

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	STEL	0,03 mg/m ³	
	TWA	0,01 mg/m ³	

Poland. MACs. Regulation regarding maximum permissible concentrations and intensities of harmful factors in the work environment, Annex 1

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³	Inhalable fraction.

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³	Respirable dust and/or fume.

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	STEL	0,1 mg/m ³	
	TWA	0,05 mg/m ³	

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³	Respirable fraction.

Spain. Occupational Exposure Limits

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³	Respirable fraction and fume.

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	Ceiling	0,05 mg/m ³	Respirable dust.
	TWA	0,2 mg/m ³	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value	Form
vanadium oxide (CAS 1314-62-1)	STEL	0,05 mg/m ³	Respirable dust.
	TWA	0,05 mg/m ³	Respirable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Material	Type	Value
vanadium oxide (CAS 1314-62-1)	TWA	0,05 mg/m ³

Biological limit values

France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065)

Material	Value	Determinant	Specimen	Sampling time
vanadium oxide (CAS 1314-62-1)	0,05 mg/g	Vanadium	Creatinine in urine	*

* - For sampling details, please see the source document.

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Material	Value	Determinant	Specimen	Sampling time
vanadium oxide (CAS 1314-62-1)	50 µg/g	Vanadium	Creatinine in urine	*

* - For sampling details, please see the source document.

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Material	Value	Determinant	Specimen	Sampling time
vanadium oxide (CAS 1314-62-1)	50 µg/g	Vanadio	Creatinine in urine	*

* - For sampling details, please see the source document.

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Material	Value	Determinant	Specimen	Sampling time
vanadium oxide (CAS 1314-62-1)	70 µg/g	Vanadium	Creatinine in urine	*

* - For sampling details, please see the source document.

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

Individual protection measures, such as personal protective equipment

General information Eye wash fountain is recommended. Use personal protective equipment as required.
Eye/face protection Wear safety glasses with side shields (or goggles). Face shield is recommended.
Skin protection
- Hand protection Wear appropriate chemical resistant gloves. Nitrile gloves are recommended.
- Other Full body suit and boots are recommended when handling large volumes or in emergency situations.
Respiratory protection Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Contain spills and prevent releases and observe national regulations on emissions. Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance Powder.
Physical state Solid.
Form Powder.
Colour Not available.
Odour Not available.
Odour threshold Not available.
pH Not available.
Melting point/freezing point 690 °C (1274 °F)
Initial boiling point and boiling range 1750 °C (3182 °F)
Flash point Not available.
Evaporation rate Not available.
Flammability (solid, gas) Not available.
Upper/lower flammability or explosive limits
Flammability limit - lower (%) Not available.
Flammability limit - upper (%) Not available.
Vapour pressure < 0,0000001 kPa at 25 °C
Vapour density Not available.
Relative density Not available.
Solubility(ies)
Solubility (water) 8 g/l
Partition coefficient (n-octanol/water) Not available.
Auto-ignition temperature Not available.
Decomposition temperature Not available.
Viscosity Not available.
Explosive properties Not explosive.
Oxidising properties Not oxidising.

9.2. Other information

Density 3,36 g/cm³ estimated at 18 °C

Molecular formula	O5-V2
Molecular weight	181,88 g/mol
Specific gravity	3,36 at 18 °C

SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Contact with incompatible materials.
10.5. Incompatible materials	Chlorine.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure by inhalation.
Skin contact	Due to lack of data the classification is not possible. Dust or powder may irritate the skin.
Eye contact	Dust may irritate the eyes.
Ingestion	Harmful if swallowed. Harmful if swallowed.

Symptoms Dusts may irritate the respiratory tract, skin and eyes. Coughing.

11.1. Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful if swallowed. Harmful if swallowed. May cause respiratory irritation.
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.
Germ cell mutagenicity	Suspected of causing genetic defects.

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

vanadium oxide (CAS 1314-62-1) Mutagenic, Category 2.

Carcinogenicity Suspected of causing cancer.

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

IARC Monographs. Overall Evaluation of Carcinogenicity

vanadium oxide (CAS 1314-62-1) 2B Possibly carcinogenic to humans.

Reproductive toxicity	Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure	Respiratory tract irritation.
Specific target organ toxicity - repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test results
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vanadium oxide (CAS 1314-62-1)

Aquatic

Fish LC50 Fathead minnow (Pimephales promelas) 1,3 - 2,88 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability No data is available on the degradability of this product.

12.3. Bioaccumulative potential No data available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment Not available.

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

12.7. Additional information

Estonia Dangerous substances in soil Data

vanadium oxide (CAS 1314-62-1)	Vanadium (V) 1000 mg/kg
	Vanadium (V) 300 mg/kg
	Vanadium (V) 50 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

EU waste code The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal methods/information Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Special precautions Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number UN2862

14.2. UN proper shipping name VANADIUM PENTOXIDE, non-fused form

14.3. Transport hazard class(es)

Class 6.1(PGIII)

Subsidiary risk -

Label(s) 6.1

Hazard No. (ADR) 60

Tunnel restriction code E

14.4. Packing group III

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number UN2862

14.2. UN proper shipping name VANADIUM PENTOXIDE, non-fused form
14.3. Transport hazard class(es)
 Class 6.1(PGIII)
 Subsidiary risk -
 Label(s) 6.1
14.4. Packing group III
14.5. Environmental hazards No.
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number UN2862
14.2. UN proper shipping name VANADIUM PENTOXIDE, non-fused form
14.3. Transport hazard class(es)
 Class 6.1(PGIII)
 Subsidiary risk -
 Label(s) 6.1
14.4. Packing group III
14.5. Environmental hazards No.
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number UN2862
14.2. UN proper shipping name Vanadium pentoxide non-fused form
14.3. Transport hazard class(es)
 Class 6.1(PGIII)
 Subsidiary risk -
14.4. Packing group III
14.5. Environmental hazards No.
ERG Code 6L
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Other information
 Passenger and cargo aircraft Allowed with restrictions.
 Cargo aircraft only Allowed with restrictions.

IMDG

14.1. UN number UN2862
14.2. UN proper shipping name VANADIUM PENTOXIDE non-fused form
14.3. Transport hazard class(es)
 Class 6.1(PGIII)
 Subsidiary risk -
14.4. Packing group III
14.5. Environmental hazards
 Marine pollutant No.
EmS F-A, S-A
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.



SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

vanadium oxide (CAS 1314-62-1)

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006. Pregnant women should not work with the product, if there is the least risk of exposure.

National regulations

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work. Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

Information on evaluation method leading to the classification of mixture

Not applicable.

Disclaimer

Materion Advanced Chemicals Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.