

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878 Issue date: 16/04/2015 Revision date: 29/11/2024 Supersedes version of: 18/03/2024 Version: 15.0

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

1.1. Product identifier

Product form	:	Mixture
Product name	:	SILVER VANADATE REAGENT
Product code	:	B1009, B1142, B1144
Product group	:	End product

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

1.2.1. Relevant identified uses

Main use category
Use of the substance/mixture
Function or use category

: Professional use: Laboratory chemicals: Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Elemental Microanalysis Ltd 1 Hameldown Road Okehampton, Devon, EX20 1UB GB United Kingdom T +44 1837 54446 enquiries@microanalysis.co.uk, https://www.elementalmicroanalysis.com/

1.4. Emergency telephone number

Emergency number

: +44 (0) 7990 767375

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4	H302
Acute toxicity (dermal), Category 4	H312
Acute toxicity (inhalation:dust,mist) Category 4	H332
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Specific target organ toxicity – Single exposure, Category 3, Respiratory	H335
tract irritation	
Full text of H- and EUH-statements: see section 16	

Adverse physicochemical, human health and environmental effects

Harmful in contact with skin. Harmful if inhaled. Harmful if swallowed. May cause respiratory irritation. Causes skin irritation. Causes serious eye irritation.

2.2. Label elements

Labelling according to Regulation	n (EC) No. 1272/2008 [CLP]
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Hazard pictograms (CLP)

Signal word (CLP) Contains

GHS07 Warning SILVER VANADATE

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Hazard statements (CLP)	: H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled.
	H315 - Causes skin irritation.
	H319 - Causes serious eye irritation.
	H335 - May cause respiratory irritation.
Precautionary statements (CLP)	: P261 - Avoid breathing dust.
	P264 - Wash hands thoroughly after handling.
	P280 - Wear eye protection, protective clothing, protective gloves.
	P312 - Call a POISON CENTER, doctor if you feel unwell.
	P321 - Specific treatment (see supplemental first aid instruction on this label).
	P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
ZIRCONIUM OXIDE substance with national workplace exposure limit(s) (LT, CH)	CAS-No.: 1314-23-4 EC-No.: 215-227-2	75	Not classified
SILVER VANADATE	CAS-No.: 13497-94-4 EC-No.: 236-820-2	25	Acute Tox. 3 (Oral), H301 (ATE=100 mg/kg bodyweight) Acute Tox. 3 (Dermal), H311 (ATE=300 mg/kg bodyweight) Acute Tox. 3 (Inhalation), H331 (ATE=0.5 mg/l/4h) Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

First-aid measures general	: Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and eas to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Rinse mouth. Call a poison center or a doctor if you feel unwell.
4.2. Most important symptoms and	effects, both acute and delayed
Symptoms/effects after inhalation	: May cause respiratory irritation.

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Symptoms/effects after eye contact : Eye irritation.	Symptoms/effects after skin contact	: Irritation.
Symptoms/effects after indestion	Symptoms/effects after eye contact	: Eye irritation.
Cymptonis/criccus and ingestion	Symptoms/effects after ingestion	: None under normal conditions.

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

Treat symptomatically.

SECTION 5: Firefighting measures		
5.1. Extinguishing media		
Suitable extinguishing media	: Water spray. Dry powder. Foam.	
Unsuitable extinguishing media	: Do not use a heavy water stream.	
5.2. Special hazards arising from the sub	stance or mixture	
Fire hazard	: No fire hazard.	
Explosion hazard	: No direct explosion hazard.	
Hazardous decomposition products in case of fire	: Toxic fumes may be released.	
5.3. Advice for firefighters		
Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.	
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.	

SECTION 6: Accidental release measures		
6.1. Personal precautions, prot	ective equipment and emergency procedures	
General measures	: Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.	
6.1.1. For non-emergency personnel		
Protective equipment	: Wear recommended personal protective equipment.	
Emergency procedures	: Ventilate spillage area. Avoid contact with skin, eyes and clothing. Avoid breathing dust/fume/gas/mist/vapours/spray.	
6.1.2. For emergency responders		
Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".	
Emergency procedures	: Evacuate unnecessary personnel.	
6.2. Environmental precautions	3	
Avoid release to the environment.		
6.3. Methods and material for c	containment and cleaning up	
For containment	: Using a clean shovel, put the material in a dry container and cover without compressing it.	
Methods for cleaning up	: Mechanically recover the product.	
Other information	: Dispose of materials or solid residues at an authorized site.	

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage	
7.1. Precautions for safe handling	
Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.

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Precautions for safe handling	: Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Use only
Hygiene measures	 outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapours/spray. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
7.2. Conditions for safe storage,	including any incompatibilities
Technical measures	: Keep in a cool, well-ventilated place away from heat.
Storage conditions	: Store locked up. Store in a well-ventilated place. Keep container tightly closed.
Packaging materials	: Store always product in container of same material as original container.
7.3. Specific end use(s)	

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection: Safety glasses

8.2.2.2. Skin protection

Skin and body protection: Wear suitable protective clothing

Hand protection: Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

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8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Colour	:	Yellow.
Odour	:	odourless.
Odour threshold	:	Not available
Melting point	:	No data available.
Freezing point	:	Not applicable
Boiling point	:	Not available
Flammability	:	Non flammable.
Explosive limits	:	Not applicable
Lower explosion limit	:	Not applicable
Upper explosion limit	:	Not applicable
Flash point	:	Not applicable
Auto-ignition temperature	:	No data available.
Decomposition temperature	:	Not available
рН	:	No data available.
pH solution	:	Not available
Viscosity, kinematic	:	Not applicable
Solubility	:	Not available
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	Not available
Relative density	:	No data available.
Relative vapour density at 20°C	:	No data available.
Particle size	:	Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

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10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 : Harmful if swallowed. Acute toxicity (oral) Acute toxicity (dermal) : Harmful in contact with skin. Acute toxicity (inhalation) Inhalation:dust.mist: Harmful if inhaled. : SILVER VANADATE REAGENT ATE CLP (oral) 400 mg/kg bodyweight ATE CLP (dermal) 1200 mg/kg bodyweight ATE CLP (dust, mist) 2 mg/l/4h ZIRCONIUM OXIDE (1314-23-4) LD50 oral rat > 5000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Guideline: EU Method B.1 tris (Acute Oral Toxicity - Acute Toxic Class Method) LC50 Inhalation - Rat (Dust/Mist) > 4.3 mg/l Source: ECHA Skin corrosion/irritation : Causes skin irritation. pH: No data available. Serious eye damage/irritation : Causes serious eye irritation. pH: No data available. Respiratory or skin sensitisation : Not classified Germ cell mutagenicity : Not classified Carcinogenicity : Not classified Not classified Reproductive toxicity : STOT-single exposure May cause respiratory irritation. SILVER VANADATE (13497-94-4) STOT-single exposure May cause respiratory irritation. STOT-repeated exposure : Not classified Aspiration hazard Not classified SILVER VANADATE REAGENT Viscosity, kinematic Not applicable

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information		
12.1. Toxicity		
Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.	
Hazardous to the aquatic environment, short-term (acute)	: Not classified	
Hazardous to the aquatic environment, long-term (chronic) Not rapidly degradable	: Not classified	

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ZIRCONIUM OXIDE (1314-23-4)	
LC50 - Fish [1]	> 100 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 100 mg/l Source: ECHA
EC50 - Other aquatic organisms [1]	100 mg/l
EC50 72h - Algae [1]	> 100 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
12.2. Persistence and degradability	
No additional information available	
12.3. Bioaccumulative potential	
No additional information available	
12.4. Mobility in soil	
No additional information available	
12.5. Results of PBT and vPvB assessment	
No additional information available	
12.6. Endocrine disrupting properties	
No additional information available	
12.7. Other adverse effects	
No additional information available	

SECTION 13: Disposal considerations

13.1. Waste treatment methods	
Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Comply with applicable regulations for solid waste disposal. Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.
HP Code	: HP5 - "Specific Target Organ Toxicity (STOT)/Aspiration Toxicity:" waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration.
	HP6 - "Acute Toxicity:" waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure.
	HP4 - "Irritant – skin irritation and eye damage:" waste which on application can cause skin irritation or damage to the eye.

SECTION 14: Transport information In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	ΙΑΤΑ	ADN	RID
14.1. UN number or ID n	umber			
UN 3285				
14.2. UN proper shippin	g name			
VANADIUM COMPOUND, N.O.S. (SILVER VANADATE)				

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ADR	IMDG	ΙΑΤΑ	ADN	RID
Transport document descr	iption		1	
UN 3285 VANADIUM COMPOUND, N.O.S. (SILVER VANADATE), 6.1, III, (E)	UN 3285 VANADIUM COMPOUND, N.O.S. (SILVER VANADATE), 6.1, III	UN 3285 Vanadium compound, n.o.s. (SILVER VANADATE), 6.1, III	UN 3285 VANADIUM COMPOUND, N.O.S. (SILVER VANADATE), 6.1, III	UN 3285 VANADIUM COMPOUND, N.O.S. (SILVER VANADATE), 6.1 III
14.3. Transport hazard o	class(es)			
6.1	6.1	6.1	6.1	6.1
6	6	6	6	6
14.4. Packing group				
III	Ш	Ш	111	III
14.5. Environmental haz	ards			
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary informatio	n available		1	1

14.6. Special precautions for user

Overland transport	
Classification code (ADR)	: T5
Special provisions (ADR)	: 274, 564
Limited quantities (ADR)	: 5kg
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P002, IBC08, LP02, R001
Special packing provisions (ADR)	: B3
Mixed packing provisions (ADR)	: MP10
Portable tank and bulk container instructions (ADR)	: T1
Portable tank and bulk container special provisions	: TP33
(ADR)	
Tank code (ADR)	: SGAH, L4BH
Tank special provisions (ADR)	: TU15, TE19
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Special provisions for carriage - Bulk (ADR)	: VC1, VC2, AP7
Special provisions for carriage - Loading, unloading	
and handling (ADR)	
Special provisions for carriage - Operation (ADR)	: S9
Hazard identification number (Kemler No.)	: 60
Orange plates	· 60
	3285
Tunnel restriction code (ADR)	: E
EAC code	: 2X
Transport by sea	
Special provisions (IMDG)	: 223, 274
Limited quantities (IMDG)	: 5 kg
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P002, LP02
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3

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Tank instructions (IMDG)	: T1
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-A
Stowage category (IMDG)	: A
Properties and observations (IMDG)	: Toxic if swallowed, by skin contact or by inhalation.
Air transport	
PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y645
PCA limited quantity max net quantity (IATA)	: 10kg
PCA packing instructions (IATA)	: 670
PCA max net quantity (IATA)	: 100kg
CAO packing instructions (IATA)	: 677
CAO max net quantity (IATA)	: 200kg
Special provisions (IATA)	: A3, A5
ERG code (IATA)	: 6L
Inland waterway transport	
Classification code (ADN)	: T5
Special provisions (ADN)	: 274, 564, 802
Limited quantities (ADN)	: 5 kg
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0
Rail transport	
Classification code (RID)	: T5
Special provisions (RID)	: 274, 564
Limited quantities (RID)	: 5kg
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P002, IBC08, LP02, R001
Special packing provisions (RID)	: B3
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T1
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAH, L4BH
Special provisions for RID tanks (RID)	: TU15
Transport category (RID)	: 2
Special provisions for carriage – Bulk (RID)	: VC1, VC2, AP7
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW28, CW31
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 60
14.7. Maritime transport in bulk according	to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

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REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:			
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways		
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road		
ATE	Acute Toxicity Estimate		
BCF	Bioconcentration factor		
BLV	Biological limit value		
BOD	Biochemical oxygen demand (BOD)		
COD	Chemical oxygen demand (COD)		
DMEL	Derived Minimal Effect level		
DNEL	Derived-No Effect Level		
EC-No.	European Community number		
EC50	Median effective concentration		
EN	European Standard		
IARC	International Agency for Research on Cancer		
ΙΑΤΑ	International Air Transport Association		
IMDG	International Maritime Dangerous Goods		
LC50	Median lethal concentration		
LD50	Median lethal dose		
LOAEL	Lowest Observed Adverse Effect Level		
NOAEC	No-Observed Adverse Effect Concentration		
NOAEL	No-Observed Adverse Effect Level		
NOEC	No-Observed Effect Concentration		
OECD	Organisation for Economic Co-operation and Development		

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Abbreviations and acronyms:		
OEL	Occupational Exposure Limit	
РВТ	Persistent Bioaccumulative Toxic	
PNEC	Predicted No-Effect Concentration	
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail	
SDS	Safety Data Sheet	
STP	Sewage treatment plant	
ThOD	Theoretical oxygen demand (ThOD)	
TLM	Median Tolerance Limit	
VOC	Volatile Organic Compounds	
CAS-No.	Chemical Abstract Service number	
N.O.S.	Not Otherwise Specified	
vPvB	Very Persistent and Very Bioaccumulative	
ED	Endocrine disruptor	

Full text of H- and EUH	I-statements:
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

The classification complies with

: ATP 12

Safety Data Sheet (SDS)_EMAL, EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.