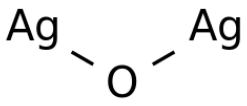
SILVER OXIDE AR

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
SDS Reference Number: 05746
Issue date: 4/9/2014 Revision date: 7/29/2026 Supersedes version of: 4/9/2015 Version: 1.0

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

1.1. Product identifier

Product form	:	Substance
Trade name	:	SILVER OXIDE AR
EC-No.	:	243-957-1
CAS-No.	:	20667-12-3
Product code	:	05746
Type of product	:	Inorganic compound
Formula	:	Ag2O
Chemical structure	:	
Synonyms	:	Silver (I) oxide, Disilver oxide

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

Relevant identified uses

Use of the substance/mixture	:	Laboratory chemicals, Manufacture of substances

1.3. Details of the supplier of the safety data sheet

LOBA CHEMIE PVT.LTD.
107 Wode House Road, Jehangir Villa, Colaba
400005 Mumbai
INDIA
T +91 22 6663 6663, F +91 22 6663 6699
info@lobachemie.com, www.lobachemie.com

1.4. Emergency telephone number

Emergency number	:	+ 91 22 6663 6663 (9:00am - 6:00 pm)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Oxidising Solids, Category 1	H271
Serious eye damage/eye irritation, Category 1	H318
Hazardous to the aquatic environment – Chronic Hazard, Category 1	H410

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

Adverse physicochemical, human health and environmental effects

May cause fire or explosion; strong oxidiser. Causes serious eye damage. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS03 GHS05 GHS09

Signal word (CLP) : Danger

Hazard statements (CLP)	:	H271 - May cause fire or explosion; strong oxidiser. H318 - Causes serious eye damage. H410 - Very toxic to aquatic life with long lasting effects.
Precautionary statements (CLP)	:	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P220 - Keep away from clothing and other combustible materials. P273 - Avoid release to the environment. P280 - Wear respiratory protection, protective gloves, protective clothing, eye protection, face protection. P283 - Wear fire resistant or flame retardant clothing. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%
SILVER OXIDE	CAS-No.: 20667-12-3 EC-No.: 243-957-1	100

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	:	If you feel unwell, seek medical advice.
First-aid measures after inhalation	:	Remove person to fresh air and keep comfortable for breathing. Give oxygen or artificial respiration if necessary. If you feel unwell, seek medical advice.
First-aid measures after skin contact	:	Gently wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Rinse skin with water/shower. Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
First-aid measures after eye contact	:	Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. Call a physician immediately.
First-aid measures after ingestion	:	Rinse mouth out with water. If you feel unwell, seek medical advice. Call a poison center or a doctor if you feel unwell.
Self protection of the first-aider	:	First-aiders should pay attention to their own protection and use the recommended personal protective equipment (see section 8).

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

Symptoms/effects after inhalation	:	May cause respiratory irritation.
Symptoms/effects after skin contact	:	Causes skin irritation.
Symptoms/effects after eye contact	:	Causes serious eye irritation. Serious damage to eyes.
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 : dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2). Water spray. Dry powder. Foam.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : May intensify fire; oxidiser. May cause fire or explosion; strong oxidiser.

Explosion hazard : Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. Risk of explosion if heated under confinement.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions : DO NOT fight fire when fire reaches explosives. Evacuate area. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. 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, protective equipment and emergency procedures

General measures : Remove ignition sources. No open flames. No smoking. Use special care to avoid static electric charges. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Use personal protective equipment as required. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Stop release. Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Mechanically recover the product. Clear up rapidly by scoop or vacuum. Notify authorities if product enters sewers or public waters.

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 : Hazardous waste due to potential risk of explosion.

Precautions for safe handling	:	Ensure good ventilation of the work station. Keep away from sources of ignition - No smoking. No open flames. No smoking. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protective equipment. Avoid contact with skin and eyes.
Hygiene measures	:	Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. 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	:	Proper grounding procedures to avoid static electricity should be followed.
Storage conditions	:	Keep in fireproof place. Store in original container.
Incompatible materials for storage	:	Heat sources. combustible materials.
Packaging materials	:	Always store 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

No additional information available

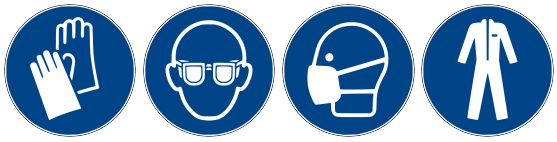
8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Personal protection equipment

Personal protective equipment:
Wear recommended personal protective equipment.
Personal protective equipment symbol(s):



Eye and face protection

Eye protection:
Chemical goggles or safety glasses

Skin protection

Skin and body protection:
Wear a mask. Wear fire/flame resistant/retardant clothing.

Hand protection:
Protective gloves

Respiratory protection

Respiratory protection:
Wear appropriate mask

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	:	Brownish black.
Appearance	:	Powder.
Molecular mass	:	231.74 g/mol
Odour	:	Odourless.
Odour threshold	:	Not available
Melting point	:	≥ 350 °C (Decomposes)
Freezing point	:	Not applicable
Boiling point	:	Not available
Flammability	:	Non flammable
Explosive properties	:	Risk of explosion if heated under confinement.
Lower explosion limit	:	Not applicable
Upper explosion limit	:	Not applicable
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	≥ 230 °C
pH	:	Not available
pH solution	:	Not available
Viscosity, kinematic	:	Not applicable
Solubility	:	Soluble in acids. Water: 0.0016 g/l at 20 °C - slightly soluble Ethanol: Insoluble in Ethanol
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	7.14 g/cm³
Relative density	:	Not available
Relative vapour density at 20°C	:	Not applicable
Particle size	:	Not available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

May intensify fire; oxidiser. May cause fire or explosion; strong oxidiser.

10.2. Chemical stability

Risk of explosion if heated under confinement. Extreme risk of explosion by shock, friction, fire or other sources of ignition.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Heat. Sparks. Open flame. Direct sunlight. Overheating. Avoid contact with hot surfaces. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Combustible materials.

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

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Causes serious eye damage.
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

SILVER OXIDE AR (20667-12-3)	
Viscosity, kinematic	Not applicable

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	Very toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short–term (acute)	:	Not classified
Hazardous to the aquatic environment, long–term (chronic)	:	Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

SILVER OXIDE AR (20667-12-3)	
Persistence and degradability	Rapidly degradable

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	:	Hazardous waste due to potential risk of explosion. Do not re-use empty containers.
Ecological waste information	:	The waste of the product should be considered as hazardous as the product itself, with the likelihood of impacting the environment in the same way. Consider the handling and disposal of the waste as defined by the product itself.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1. UN number or ID number

UN-No. (ADR)	:	UN 1479
UN-No. (IMDG)	:	UN 1479
UN-No. (IATA)	:	UN 1479
UN-No. (ADN)	:	UN 1479
UN-No. (RID)	:	UN 1479

14.2. UN proper shipping name

Proper Shipping Name (ADR)	:	OXIDIZING SOLID, N.O.S.
Proper Shipping Name (IMDG)	:	OXIDIZING SOLID, N.O.S.
Proper Shipping Name (IATA)	:	Oxidizing solid, n.o.s.
Proper Shipping Name (ADN)	:	OXIDIZING SOLID, N.O.S.
Proper Shipping Name (RID)	:	OXIDIZING SOLID, N.O.S.
Transport document description (ADR) (ADR)	:	UN 1479 OXIDIZING SOLID, N.O.S. (SILVER OXIDE), 5.1, I, (E), ENVIRONMENTALLY HAZARDOUS
Transport document description (IMDG)	:	UN 1479 OXIDIZING SOLID, N.O.S. (SILVER OXIDE), 5.1, I, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Transport document description (IATA)	:	UN 1479 Oxidizing solid, n.o.s. (SILVER OXIDE), 5.1, I, ENVIRONMENTALLY HAZARDOUS
Transport document description (ADN)	:	UN 1479 OXIDIZING SOLID, N.O.S., 5.1, I, ENVIRONMENTALLY HAZARDOUS
Transport document description (RID)	:	UN 1479 OXIDIZING SOLID, N.O.S., 5.1, I, ENVIRONMENTALLY HAZARDOUS

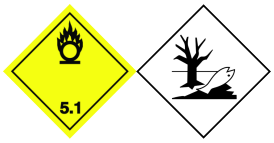
14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 5.1

Danger labels (ADR) : 5.1

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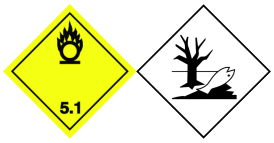


IMDG

Transport hazard class(es) (IMDG) : 5.1

Danger labels (IMDG) : 5.1

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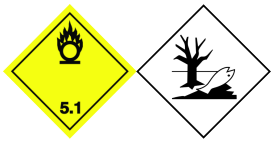


IATA

Transport hazard class(es) (IATA) : 5.1

Danger labels (IATA) : 5.1

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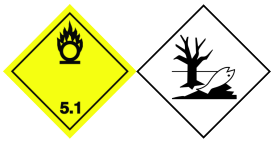


ADN

Transport hazard class(es) (ADN) : 5.1

Danger labels (ADN) : 5.1

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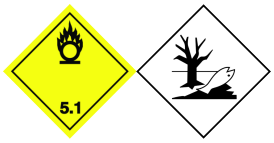


RID

Transport hazard class(es) (RID) : 5.1

Danger labels (RID) : 5.1

:



14.4. Packing group

Packing group (ADR)	:	I
Packing group (IMDG)	:	I
Packing group (IATA)	:	I
Packing group (ADN)	:	I
Packing group (RID)	:	I

14.5. Environmental hazards

Dangerous for the environment	:	Yes
Marine pollutant	:	Yes
EmS-No. (Fire)	:	F-A
EmS-No. (Spillage)	:	S-Q
Other information	:	No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR)	:	O2
Special provisions (ADR)	:	274
Limited quantities (ADR)	:	0
Excepted quantities (ADR)	:	E0
Packing instructions (ADR)	:	P503, IBC05
Mixed packing provisions (ADR)	:	MP2
Transport category (ADR)	:	1
Special provisions for carriage - Packages (ADR)	:	V10
Special provisions for carriage - Loading, unloading and handling (ADR)	:	CV24
Special provisions for carriage - Operation (ADR)	:	S20
Tunnel restriction code (ADR)	:	E
EAC code	:	1Y

Transport by sea

Special provisions (IMDG)	:	274, 900
Limited quantities (IMDG)	:	0
Excepted quantities (IMDG)	:	E0
Packing instructions (IMDG)	:	P503
IBC packing instructions (IMDG)	:	IBC05
IBC special provisions (IMDG)	:	B1

Stowage category (IMDG)	:	D
Segregation (IMDG)	:	SG38, SG49, SG60, SG61
MFAG-No	:	140

Air transport

PCA Excepted quantities (IATA)	:	E0
PCA Limited quantities (IATA)	:	Forbidden
PCA limited quantity max net quantity (IATA)	:	Forbidden
PCA packing instructions (IATA)	:	557
PCA max net quantity (IATA)	:	1kg
CAO packing instructions (IATA)	:	561
CAO max net quantity (IATA)	:	15kg
Special provisions (IATA)	:	A3, A803
ERG code (IATA)	:	5L

Inland waterway transport

Classification code (ADN)	:	O2
Special provisions (ADN)	:	274
Limited quantities (ADN)	:	0
Excepted quantities (ADN)	:	E0
Equipment required (ADN)	:	PP
Number of blue cones/lights (ADN)	:	0

Rail transport

Classification code (RID)	:	O2
Special provisions (RID)	:	274
Limited quantities (RID)	:	0
Excepted quantities (RID)	:	E0
Packing instructions (RID)	:	P503, IBC05
Mixed packing provisions (RID)	:	MP2
Transport category (RID)	:	1
Special provisions for carriage – Packages (RID)	:	W10
Special provisions for carriage - Loading, unloading and handling (RID)	:	CW24
Hazard identification number (RID)	:	55

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

EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (2024/590)

Not listed on the Ozone Depletion list (Regulation EU 2024/590)

Council Regulation (EC) for the control of dual-use items

Not listed on the COUNCIL REGULATION (EC) of dual-use items.

Explosives Precursors Regulation (EU 2019/1148)

Not listed on the Explosives Precursors list (EU)

Drug Precursors Regulation (EC 273/2004)

Not listed on the Drug Precursors list (EU)

National regulations

Denmark

Danish National Regulations	:	Young people below the age of 18 years are not allowed to use the product

Germany

Water hazard class (WGK)	:	WGK 2, Significantly hazardous to water (Classification according to AwSV; ID No. 3335).
Chemicals Prohibition Ordinance (ChemVerbotsV)	:	This product is subject to ChemVerbotsV Annex 2 Entry 2. The following requirement must be observed: Basic requirements for the implementation of the submission (according to § 8 paragraph 1, 3 and 4).

Netherlands

SZW List of Carcinogenic Substances	:	The substance is not listed
SZW List of Mutagenic Substances	:	The substance is not listed
SZW List of Reprotoxic Substances – Breastfeeding	:	The substance is not listed
SZW List of Reprotoxic Substances – Fertility	:	The substance is not listed
SZW List of Reprotoxic Substances – Development	:	The substance is not listed

Poland

Polish National Regulations	:	Act of 25 February 2011 on chemical substances and their mixtures (J. o L. No. 63, item 322 as amended; consolidated text J. o L. 2019, item 1225). Act of 14 December 2012 on waste (J. o L. 2013, item 322 as amended; consolidated text J. o L. 2020, item 797). The announcement of Marshal of the Sejm of the Republic of Poland dated 19 October 2016 concerning the consolidated text announcement of the decree on the management of packaging and packaging waste (J. o L. 2016, item 1863 as amended). Decree of the Minister of Environment of 14 December 2014 on the catalogue of waste (J. o L. 2014, item 1923). Act of 19 August 2011 on the Carriage of Dangerous Goods (J. o L. 2011 No. 227, item 1367 as amended; consolidated text J. o L. 2020, item 154). Regulation of the Minister of Family, Labour and Social Policy of 12 June 2018 on the highest permissible concentration and intensity of noxious agents for health at work environment (J. o L. item 1286 as amended). The announcement of Minister of Health dated 9 September 2016 concerning the consolidated text announcement of the decree of the Minister of Health of 30 December 2004 on health and safety at work related to exposure to chemical agents at work (J. o L. of 16 September 2016, item 1488) Regulation of the Minister of Health of 2 February 2011 on tests and measurements of the noxious agents for health at work environment (J. o L. No. 33, item 166 as amended). Regulation of the Minister of Environment of 9 December 2003 on particularly hazardous substances to the environment (J. o L. No. 217, item 2141). ADR Agreement: Government Statement of 13 March 2023 on the entry into force of amendments to Annexes A and B to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), signed in Geneva on 30 September 1957 (J. o. L. 2023, item 891) Regulation of the Minister of Health of 25 August 2015 on the method of marking places, pipelines, and containers and tanks used for storing or containing hazardous substances or hazardous mixtures (J.o.L. 2015, item 1368 as amended)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ACGIH	American Conference of Governmental Industrial Hygienists
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)
CAS-No.	Chemical Abstracts Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment

Abbreviations and acronyms:	
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Full text of H- and EUH-statements:	
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Ox. Sol. 1	Oxidising Solids, Category 1
H271	May cause fire or explosion; strong oxidiser.
H318	Causes serious eye damage.
H410	Very toxic to aquatic life with long lasting effects.

Safety Data Sheet (SDS), 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.