

According to Regulation (EC) No 1907/2006

Silver(I) oxide 99+%



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

1.1. Product identifier

Trade name

Silver(I) oxide 99+%

CAS number

20667-12-3

EC number

243-957-1

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

Relevant identified uses

Research and development.

Not suitable for use in

Not suitable for human consumption or veterinary purposes.

1.3. Details of the supplier of the safety data sheet

Supplier

Molekula Group

Street address

Molekula Ltd, Lingfield Way, Darlington,
DL1 4XX Darlington
United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

Contact person

Kevin Banks

Email address

+44 (0) 7769276927

1.4. Emergency telephone number

Poison center/Additional emergency number

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Serious eye damage, hazard category 1

Hazardous to the aquatic environment — Acute hazard category 1

Hazardous to the aquatic environment — Chronic hazard category 1

Oxidising solids, hazard category 1

Hazard statements

H271, H272, H318, H400, H410

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H271 May cause fire or explosion; strong oxidiser.

H272 May intensify fire; oxidiser.

H318 Causes serious eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

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 protective gloves/protective clothing/eye protection/face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P410 Protect from sunlight.

2.3. Other hazards

No data available

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SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrases M factor acute M factor chronic	Note
Silver(I) oxide 99+%	20667-12-3 243-957-1 - -	100%	Ox. Sol. 1, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1	H271, H272, H318, H400, H410 - -	-

Molecular weight

231.74

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

IF exposed or concerned: Get medical advice/attention. First aiders/ medical personnel need to protect themselves. Show this Safety Data Sheet (SDS) to medical personnel.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. If breathing stops, provide artificial respiration. For breathing difficulties oxygen may be necessary.

Skin contact

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER/doctor.

Eye contact

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

Ingestion

IF SWALLOWED: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only if the persons are fully conscious and awake). Administer activated charcoal (20 - 40g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

Information for doctors

No data available.

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

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. Causes burns by all exposure routes.

See section 11 for more detailed information on health effects and symptoms.

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Inhalation

Single exposure may cause the following adverse effects: Causes severe burns. Difficulty in breathing. Unconsciousness, possibly death.

Skin contact

Single exposure may cause the following adverse effects: Causes severe burns. Blistering may occur. May be absorbed in the body and cause dizziness, nausea and vomiting. Unconsciousness, death.

Eye contact

Single exposure may cause the following adverse effects: Causes serious eye damage. Unconsciousness, possibly death.

Ingestion

Single exposure may cause the following adverse effects: Severe abdominal pain. May cause severe internal injury. Unconsciousness, possibly death.

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

Treat symptomatically. Immediately call a POISON CENTER/doctor.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

Unsuitable extinguishing media

No specific fire fighting procedure given.

5.2. Special hazards arising from the substance or mixture

Specific hazards: Corrosive.

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

fire-promoting effect due to release of oxygen

Silver. / silver oxides

Not combustible.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Prevent skin contact by maintaining a safe distance and by wearing suitable protective equipment/ clothing. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/spray. Avoid breathing dust. Avoid contact with skin and eyes. Provide adequate ventilation.

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. For personal protection, see section 8.

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6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Collect with absorbent, non-combustible material into suitable containers.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

General hygiene

Immediately change contaminated clothes. Wash contaminated clothing before reuse. Wash hands after handling. For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a dry place. Store in a closed container.

Store at ambient temperature. Store separately or together with other oxidising substances only.

Avoid heat, flames and other sources of ignition. Due to their oxidation potential these products can raise the burning rate of combustible substances substantially and/or ignite combustible substances on contact with them.

7.3. Specific end use(s)

No specific usage precautions noted.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No data available

8.2. Exposure controls

Eye / face protection

Wear eye protection.

Hand protection

Wear protective gloves. Recommended gloves: Nitrile.

Glove Thickness: 0.11mm

Breakthrough time: 8 hours

Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.

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Other skin protection

Wash skin thoroughly after handling.

Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

Environmental exposure controls

Avoid discharge into drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Solid

Colour

Dark grey

Odour

Odourless.

Melting point / freezing point

No data available

Boiling point or initial boiling point and boiling range

No data available

Flammability

This product is not flammable.

Lower and upper explosion limit

No data available

Flash point

No data available

Auto-ignition temperature

No data available

Decomposition temperature

230 °C

pH

No data available

Kinematic viscosity

No data available

Solubility

0.0016 g/l at 20 °C - slightly soluble

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Partition coefficient n-octanol/water

No data available

Vapour pressure

No data available

Density and/or relative density

7.143 g/cm³

Relative vapour density

No data available

Particle characteristics

No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Risk of explosion with:

Aluminium.

Ammonia.

Ethanol.

Sodium.

Organic nitro compounds.

Carbon monoxide (CO).

Hydrazines

Risk of ignition or formation of inflammable gases or vapours with:

Sulphur.

Selenium

Hydrogen sulphide (H₂S).

Phosphorus.

Sulphides

combustible substances

Exothermic reaction with:

Magnesium.

10.4. Conditions to avoid

Light.

10.5. Incompatible materials

Strong oxidising agents.

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10.6. Hazardous decomposition products

See section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Test animals
Silver(I) oxide 99+% 20667-12-3 / 243-957-1	LD50	3804 mg/kg	Oral	Rat

Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Species
Silver(I) oxide 99+% 20667-12-3 / 243-957-1	Risk of serious eye damage.	Rabbit

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

No data available

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

No data available

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12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Dispose of contents/container in accordance with local regulations.

SECTION 14: Transport information

14.1. UN number

1479

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

OXIDIZING SOLID, N.O.S. (Disilver oxide)

IMDG proper shipping name

OXIDIZING SOLID, N.O.S. (Disilver oxide)

IATA proper shipping name

Oxidizing solid, n.o.s. (Disilver oxide)

14.3. Transport hazard class(es)

Label

ADR/RID/ADN



5.1

IMDG



5.1

IATA



5.1

ADR / RID Class

5.1

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ADR / RID Classification code

O2

IMDG Class

5.1

IATA Class

5.1

ADN Class

5. 1

ADN Class Code

O2

14.4. Packing group

ADR / RID / ADN: I

IMDG: I

IATA: I

14.5. Environmental hazards

IMDG EmS

F-A, S-Q

14.6. Special precautions for user

Tunnel restriction code: E

Transport category: 1

14.7. Maritime transport in bulk according to IMO instruments

IBC Instruction: IBC05

SECTION 15: Regulatory information

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

EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National regulations

P8 OXIDISING LIQUIDS AND SOLIDS

E1 ENVIRONMENTAL HAZARDS

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

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SECTION 16: Other information

Phrase meaning

Eye Dam. 1 - Serious eye damage, hazard category 1

Aquatic Acute 1 - Hazardous to the aquatic environment — Acute hazard category 1

Aquatic Chronic 1 - Hazardous to the aquatic environment — Chronic hazard category 1

Ox. Sol. 1 - Oxidising solids, hazard category 1

H271 May cause fire or explosion; strong oxidiser.

H272 May intensify fire; oxidiser.

H318 Causes serious eye damage.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.