

Silver oxide v.p.

Revision: 14.10.2025

Product code: AC14.01316

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Silver oxide v.p.

CAS No: 20667-12-3
EC No: 243-957-1

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

Reagents and laboratory chemicals
Only for laboratory and analysis purposes.

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet**Details of the supplier of the safety data sheet**

Company name: AnalytiChem Services, Unipessoal, Lda
Street: Rua de Júlio Dinis 676 7º
Place: N-4050-320 Porto
Telephone: +351 226002917
E-mail: info@analytichem.com
Contact person: SDS service department
E-mail: SDS@analytichem.com
Internet: www.analytichem.com
Responsible Department: SDS service department

Supplier or manufacturer details

Company name: AnalytiChem Belgium NV
Street: Industriezone "De Arend" 2
Place: B-8210 Zedelgem
Telephone: +32 50 28 83 20
E-mail: info.be@analytichem.com
Contact person: SDS service department
E-mail: SDS@analytichem.com
Responsible Department: AnalytiChem:
EU-Belgium: AnalytiChem Belgium, Industriezone "De Arend" 2, 8210 Zedelgem, Belgium, +32 50 28 83 20
EU-Germany: AnalytiChem Germany, Stempelstrasse 6, 47167 Duisburg, Germany, +49 203 51 94 – 200
EU-Netherlands: AnalytiChem Netherlands, Communicatieweg 7, 3641 SG Mijdrecht, The Netherlands, +31 297 286848
UK: AnalytiChem UK, Unit 7 Launton Business Center, Murdock Road, Bicester, OX26 4XB, England, +44 1869 355 500
USA: AnalytiChem USA, 227 China Road, Winslow, Maine, 04901, United States, +1 800-244-8378
Canada: AnalytiChem Canada, 21800 Clark Graham Avenue, Baie d'Urfe, H9X 4B6, Canada, +1 514-457-0701
Australia: ORE Research & Exploration Pty Ltd, 37A Hosie Street, Bayswater North, 3153, Australia, +61 3 9729 0333
+44 20 3807 3798 (CHEMTREC)

1.4. Emergency telephone number:**Further Information**

A registration number is not available for this substance as the substance or its use are exempted from

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registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

Ox. Sol. 1; H271

Eye Dam. 1; H318

Aquatic Acute 1; H400

Aquatic Chronic 1; H410

Full text of hazard statements: see SECTION 16.

2.2. Label elements**Regulation (EC) No 1272/2008****Signal word:** Danger**Pictograms:****Hazard statements**

H271 May cause fire or explosion; strong oxidiser.

H318 Causes serious eye damage.

H410 Very toxic to aquatic life with long lasting effects.

EUH044 Risk of explosion if heated under confinement.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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

P308 IF exposed or concerned:

P310 Immediately call a POISON CENTER/doctor.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients**3.1. Substances**Sum formula: Ag₂O

Molecular weight: 231,74 g/mol

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Relevant ingredients

| CAS No | Chemical name | | | Quantity |
|------------|--|----------|----------|----------|
| | EC No | Index No | REACH No | |
| | Classification (Regulation (EC) No 1272/2008) | | | |
| 20667-12-3 | disilver oxide | | | 100 % |
| | 243-957-1 | | | |
| | Ox. Sol. 1, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1; H271 H318 H400 H410 EUH044 | | | |

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

Specific Conc. Limits, M-factors and ATE

| CAS No | EC No | Chemical name | Quantity |
|------------|---|--|----------|
| | | Specific Conc. Limits, M-factors and ATE | |
| 20667-12-3 | 243-957-1 | disilver oxide | 100 % |
| | dermal: LD50 = > 348 mg/kg; oral: LD50 = > 2000 mg/kg | | |

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Self-protection of the first aider

After inhalation

Provide fresh air.

Call a physician immediately.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.

Remove contact lenses, if present and easy to do. Continue rinsing.

Consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water.

Do NOT induce vomiting. Do not allow a neutralisation agent to be drunk.

Call a physician immediately.

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

corrosive

Cough

Irritant

Dyspnoea

Risk of serious damage to eyes.

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

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Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Non-combustible solids

Oxidizing

Material, oxygen-rich, Oxidising

5.3. Advice for firefighters

Avoid contact with skin, eyes and clothes.

In case of fire: Wear self-contained breathing apparatus.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Consult an expert

Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up**For containment**

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Take up carefully when dry. Take up dust-free and set down dust-free.

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

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Advice on safe handling

Handle and open container with care.
Provide adequate ventilation.
Avoid contact with skin, eyes and clothes.
Avoid dust formation. Do not breathe dust.
Read label before use.

Advice on protection against fire and explosion

Keep away from combustible material.
May intensify fire; oxidiser.

Advice on general occupational hygiene

Take off contaminated clothing.
Wash hands before breaks and after work.
When using do not eat or drink.

Further information on handling

Take off contaminated clothing and wash it before reuse.
Wash hands before breaks and after work.
Draw up and observe skin protection programme.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep container tightly closed and dry.

Hints on joint storage

Keep away from combustible material.
Take national regulations into account.

Further information on storage conditions

storage temperature < +15°C
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****DNEL/DMEL values**

| CAS No | Substance | | | |
|--------------------------|----------------|----------------|----------|----------------------|
| DNEL type | | Exposure route | Effect | Value |
| 20667-12-3 | disilver oxide | | | |
| Consumer DNEL, long-term | | oral | systemic | 1,29 mg/kg bw/day |
| Worker DNEL, long-term | | inhalation | systemic | 0,107 mg/m³ |
| Consumer DNEL, long-term | | inhalation | systemic | 0,043 mg/m³ |

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PNEC values

| CAS No | Substance | |
|--|----------------|--------------|
| Environmental compartment | | Value |
| 20667-12-3 | disilver oxide | |
| Freshwater | | 0,00004 mg/l |
| Marine water | | 0,00086 mg/l |
| Freshwater sediment | | 438,13 mg/kg |
| Marine sediment | | 438,13 mg/kg |
| Micro-organisms in sewage treatment plants (STP) | | 0,025 mg/l |
| Soil | | 1,41 mg/kg |

8.2. Exposure controls**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Suitable eye protection: goggles.

Hand protection

Suitable examples are gloves of KCL GmbH, D-36124 Eichenzell, e-mail: vertrieb@kcl.de with the following specification (test according to EN 374):

By long-term hand contact

Trade name/designation: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Wear suitable protective clothing.

Take off immediately all contaminated clothing.

Wash hands before breaks and after work.

The choice of body protection depends on the concentration and quantity of hazardous substances. The chemical resistance of protective agents must be clarified with their suppliers.

Respiratory protection

Respiratory protection necessary at: dust formation

Filtering device with filter or ventilator filtering device of type: P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

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Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

| | |
|---|------------------------|
| Physical state: | solid |
| Colour: | dark brown |
| Odour: | odourless |
| Odour threshold: | No data available |
| Melting point/freezing point: | >200 °C |
| Boiling point or initial boiling point and boiling range: | No data available |
| Flammability: | not determined |
| Lower explosion limits: | No data available |
| Upper explosion limits: | No data available |
| Flash point: | X |
| Auto-ignition temperature: | No data available |
| pH-Value: | No data available |
| Viscosity / kinematic: | No data available |
| Water solubility: | insoluble in: Water |
| Solubility in other solvents | not determined |
| Dissolution rate: | No data available |
| Partition coefficient n-octanol/water: | No data available |
| Dispersion stability: | No data available |
| Vapour pressure: | No data available |
| Vapour pressure: | No data available |
| Density (at 20 °C): | 7,2 g/cm ³ |
| Relative density: | No data available |
| Bulk density: | ~950 kg/m ³ |
| Relative vapour density: | No data available |
| Particle characteristics: | No data available |

9.2. Other information**Information with regard to physical hazard classes**

Explosive properties

No data available

Sustained combustibility:

No data available

Self-ignition temperature

Solid:

No data available

Gas:

not applicable

Oxidizing properties

The product is: oxidising, Oxidising.

Oxidizing solids, Category 1

Other safety characteristics

| | |
|--------------------------|-------------------|
| Evaporation rate: | No data available |
| Solvent separation test: | No data available |
| Solvent content: | No data available |
| Solid content: | 100% |
| Sublimation point: | No data available |
| Softening point: | No data available |
| Pour point: | No data available |

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Viscosity / dynamic:

No data available

Flow time:

No data available

No data available

Further Information

No data available

SECTION 10: Stability and reactivity**10.1. Reactivity**

Material, oxygen-rich, Oxidising

Risk of explosion if heated under confinement.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Explosion hazard with::

Aluminium, Ammonia

Ethanol, Hydrazine

Carbon monoxide, Sodium (Na)

Ignition hazard:

Combustible substance, SULPHUR

Hydrogen sulfide (H₂S), selenium, White/yellow phosphor

Exothermic reaction with: Magnesium

10.4. Conditions to avoid

Heat

10.5. Incompatible materials

No data available

10.6. Hazardous decomposition products

No data available

Further information

No data available

SECTION 11: Toxicological information**11.1. Information on hazard classes****Toxicokinetics, metabolism and distribution**

No data available

Acute toxicity

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

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

May cause respiratory irritation.

Mucous membrane irritation in the mouth, throat, esophagus and gastrointestinal tract.

Inhalation effect: Damage to the respiratory tract.

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| CAS No | Chemical name | | | | |
|------------|----------------|-------------------|------------|--|--------------------|
| | Exposure route | Dose | Species | Source | Method |
| 20667-12-3 | disilver oxide | | | | |
| | oral | LD50 > 2000 mg/kg | Rat | Study report (1993) | OECD Guideline 401 |
| | dermal | LD50 > 348 mg/kg | Guinea pig | J. Vet. Med. Sci.73: 1417 - 1423. (2011) | OECD Guideline 434 |

Irritation and corrosivity

Serious eye damage/eye irritation: Causes serious eye damage.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Risk of serious damage to eyes.

Sensitising effects

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

Carcinogenic/mutagenic/toxic effects for reproduction

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards**Endocrine disrupting properties**

No data available

Other information

No data available

Further information

corrosive

Cough

Irritant

Dyspnoea

Risk of serious damage to eyes.

SECTION 12: Ecological information**12.1. Toxicity**

Very toxic to aquatic life.

Very toxic to aquatic life with long lasting effects.

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| CAS No | Chemical name | | | | | |
|------------|--------------------------|----------------------|-----------|---------|------------------------------------|--|
| | Aquatic toxicity | Dose | [h] [d] | Species | Source | Method |
| 20667-12-3 | disilver oxide | | | | | |
| | Acute fish toxicity | LC50 mg/l | 0,0012 | 96 h | Pimephales promelas | Environmental Toxicology and Chemistry. |
| | Acute algae toxicity | ErC50 mg/l | 0,0099 | 96 h | Pseudokirchneriella subcapitata | eline: U.S. Environmental Protection Age |
| | Acute crustacea toxicity | EC50 mg/l | 0,00022 | 48 h | Daphnia magna | The protective effect of reactive sulphi |
| | Fish toxicity | NOEC 0,00125 mg/l | > | 73 d | Oncorhynchus mykiss | Environmental Toxicology and Chemistry 2 |
| | Algae toxicity | NOEC mg/l | 0,0012 | 14 d | Champia parvula | in Bishop WE, Cardwell RD Heidolph BB (E |
| | Crustacea toxicity | NOEC mg/l | 0,00031 | 20 d | Isonychia bicolor | Environmental Toxicology and Chemistry. |

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential**BCF**

| CAS No | Chemical name | BCF | Species | Source |
|------------|----------------|-----|-----------------|---------------------|
| 20667-12-3 | disilver oxide | 70 | Cyprinus carpio | Water, Air and Soil |

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of UK REACH.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Avoid release to the environment.

Further information

Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not mix with other wastes.

Do not empty into drains.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

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The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information**Land transport (ADR/RID)**

| | |
|--|---|
| 14.1. UN number or ID number: | UN 3085 |
| 14.2. UN proper shipping name: | OXIDIZING SOLID, CORROSIVE, N.O.S. (disilver oxide) |
| 14.3. Transport hazard class(es): | 5.1 |
| 14.4. Packing group: | II |
| Hazard label: | 5.1+8 |
| Classification code: | OC2 |
| Special Provisions: | 274 |
| Limited quantity: | 1 kg |
| Excepted quantity: | E2 |
| Transport category: | 2 |
| Hazard No: | 58 |
| Tunnel restriction code: | E |

Inland waterways transport (ADN)

| | |
|--|---|
| 14.1. UN number or ID number: | UN 3085 |
| 14.2. UN proper shipping name: | OXIDIZING SOLID, CORROSIVE, N.O.S. (disilver oxide) |
| 14.3. Transport hazard class(es): | 5.1 |
| 14.4. Packing group: | II |
| Hazard label: | 5.1+8 |
| Classification code: | OC2 |
| Special Provisions: | 274 |
| Limited quantity: | 1 kg |
| Excepted quantity: | E2 |

Marine transport (IMDG)

| | |
|--|---|
| 14.1. UN number or ID number: | UN 3085 |
| 14.2. UN proper shipping name: | OXIDIZING SOLID, CORROSIVE, N.O.S. (disilver oxide) |
| 14.3. Transport hazard class(es): | 5.1 |
| 14.4. Packing group: | II |
| Hazard label: | 5.1+8 |
| Special Provisions: | 274 |
| Limited quantity: | 1 kg |
| Excepted quantity: | E2 |
| EmS: | F-A, S-Q |

Air transport (ICAO-TI/IATA-DGR)

| | |
|--|---|
| 14.1. UN number or ID number: | UN 3085 |
| 14.2. UN proper shipping name: | OXIDIZING SOLID, CORROSIVE, N.O.S. (disilver oxide) |
| 14.3. Transport hazard class(es): | 5.1 |
| 14.4. Packing group: | II |
| Hazard label: | 5.1+8 |
| Special Provisions: | A3 A803 |
| Limited quantity Passenger: | 2.5 kg |
| Passenger LQ: | Y544 |
| Excepted quantity: | E2 |
| IATA-packing instructions - Passenger: | 558 |
| IATA-max. quantity - Passenger: | 5 kg |
| IATA-packing instructions - Cargo: | 562 |
| IATA-max. quantity - Cargo: | 25 kg |

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14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes
Danger releasing substance: disilver oxide

14.6. Special precautions for user

Warning: Oxidising substances.

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 regulatory information**

Information according to Directive 2012/18/EU (SEVESO III): P8 OXIDISING LIQUIDS AND SOLIDS
Additional information: E1

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).
Water hazard class (D): 2 - obviously hazardous to water

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 1,9,12.

Abbreviations and acronyms

Ox. Sol. 1: Oxidising solids, hazard category 1
Eye Dam. 1: Serious eye damage, hazard category 1
Aquatic Acute 1: Hazardous to the aquatic environment, hazard category: Acute 1
Aquatic Chronic 1: Hazardous to the aquatic environment, long-term hazard category: Chronic 1
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

Relevant H and EUH statements (number and full text)

H271 May cause fire or explosion; strong oxidiser.
H318 Causes serious eye damage.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
EUH044 Risk of explosion if heated under confinement.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing,

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the information on this safety data sheet is not necessarily valid for the new made-up material.

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

Provide appropriate information, instructions and training to users