

## SAFETY DATA SHEET

### Ref. Material, Silver Oxide

Date of Preparation: 06/26/2014

SDS #: 004-16836-00MSDS

#### SECTION 1: IDENTIFICATION

**Product Identification:** Silver Oxide, Ag<sub>2</sub>O

**CAS Number:** 20667-12-3

**Other Designations:** None

**Volumes:** None

**Recommended Use:** For laboratory use only.

**Restrictions:** For laboratory use only.

**Supplier Information:**

Micromeritics Instrument Corp.  
4356 Communications Drive  
Norcross, GA 30093-2901 USA

Contact: Human Resources  
Phone: (770) 662-3620  
Fax: (770) 662-3696

**Manufacturer:** Fisher Scientific, 1 Reagent Lane, Fairlawn, NJ 07410; Phone: (201) 796-7100

#### SECTION 2: HAZARDS IDENTIFICATION

**GHS Classification:** Category 1 Oxidizing solids, Category 1 Serious eye damage, Category 1 Acute aquatic toxicity, Category 1 Chronic aquatic toxicity

**Signal word:** Danger

**Hazard Statements:**

H271: May cause fire or explosion; strong oxidizer.

H318: Causes serious eye damage.

H410: Very toxic to aquatic life with long lasting effects.

**Pictograms:**



**Precautionary Statements:**

P210: Keep away from heat.

P220: Keep/Store away from clothing/ combustible materials.

P221: Take any precaution to avoid mixing with combustibles.

P273: Avoid release to the environment.

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

P283: Wear fire/ flame resistant/ 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.

P306 + P360: IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P310: Immediately call a POISON CENTER or doctor/ physician.

P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P371 + P380 + P375: In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

P391: Collect spillage.

P501: Dispose of contents/ container to an approved waste disposal plant.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	% wt or % vol.
Silver Oxide EINECS # 243-957-1	20667-12-3	100.0

#### Trace Impurities:

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
	TWA	STEL	TWA	STEL	TWA	STEL	IDLH
Silver Oxide	0.01 mg/m <sup>3</sup> (listed under "no name")	none estab.	none estab.	none estab.	as Ag: 0.01 mg/m <sup>3</sup> (listed under "no name")	none estab.	none estab.

### SECTION 4: FIRST-AID MEASURES

**Inhalation:** Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. **Note to Physician:** *Treat symptomatically and supportively.*

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately. DO NOT allow victim to rub or keep eyes closed.

**Skin Contact:** Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** If victim is conscious and alert, give 2-4 cup fulls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Note to Physicians:** Not Applicable

**Special Precautions/Procedures:** Not Applicable

## SECTION 5: FIRE-FIGHTING MEASURES

**Flammability Classification:** Not Applicable

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray, or alcohol-resistant foam

**Unusual Fire or Explosion Hazards:** Strong oxidizer. Contact with combustible materials may cause a fire.

**Hazardous Combustion Products:** Not Applicable

**Fire-Fighting Instructions:** Not Applicable

**Fire-Fighting Equipment:** Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up:** Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

**Reference to other sections:** For disposal see section 13.

## SECTION 7: HANDLING AND STORAGE

**Precautions for safe handling:** Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition – No smoking. For precautions see section 2.

**Conditions for safe storage, including any incompatibilities:** Keep container tightly closed in a dry and well-ventilated place. Light sensitive. Keep in a dry place.

**Specific end use(s):** Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

**Components with workplace control parameters:** Contains no substances with occupational exposure limit values.

### Exposure controls

**Appropriate engineering controls:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

#### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail [sales@kcl.de](mailto:sales@kcl.de), test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**Flash Point:** Not Applicable

**Flash Point Method:** Not Applicable

**Burning Rate:** Not Applicable

**Autoignition Temperature:** Not Applicable

**LEL:** Not Applicable

**UEL:** Not Applicable

**Physical State:** Solid

**Appearance:** Brownish, black heavy, powder

**Odor:** None

**Odor Threshold:** Not Applicable

**Vapor Pressure:** Not Applicable

**Vapor Density (Air=1):** Not Applicable

**Formula Weight:** Not Applicable

**Density:** Not Applicable

**Specific Gravity (H<sub>2</sub>O=1, at 4 °C):** 7.14

**pH:** Not Applicable

**Water Solubility:** Negligible

**Other Solubilities:** Not Applicable

**Boiling Point:** Not Applicable

**Freezing/Melting Point:** 3922 °F

**Viscosity:** Not Applicable

**Refractive Index:** Not Applicable

**Surface Tension:** Not Applicable

**% Volatile:** Not Applicable

**Evaporation Rate:** Not Applicable

**Molecular Weight/Formula:** 231.7358; Ag<sub>2</sub>O

## SECTION 10: STABILITY AND REACTIVITY

**Stability:** Stable; absorbs carbon dioxide from the air

**Polymerization:** Not Applicable

**Chemical Incompatibilities:** Reacts dangerously with ammonia. Grinding silver oxide with metal sulfides, selenium, sulfur, or phosphorous can cause ignition. Hydrogen sulfide may ignite when in contact with silver oxide. Incompatible with hydrazines, amines, sulfur, metal sulfides, and carbon monoxide.

**Conditions to Avoid:** Incompatible materials, combustible materials, organic materials, reducing agents

**Hazardous Decomposition Products:** Oxygen, silver fumes

**Hazardous Symbols:** X | F

## SECTION 11: TOXICOLOGICAL INFORMATION

**Acute toxicity**

LD50 Oral - rat - male and female - 3,804 mg/kg

(OECD Test Guideline 401)

Inhalation: no data available

Dermal: no data available

**Skin corrosion/irritation**

Skin - rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

**Serious eye damage/eye irritation**

Eyes - rabbit

Result: Risk of serious damage to eyes.

(OECD Test Guideline 405)

**Respiratory or skin sensitization:** no data available

**Germ cell mutagenicity:** no data available

**Carcinogenicity:**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** no data available

**Specific target organ toxicity - single exposure:** no data available

**Specific target organ toxicity - repeated exposure:** no data available

**Aspiration hazard:** no data available

**Additional Information:** RTECS: VW4900000

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver), To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## SECTION 12: ECOLOGICAL INFORMATION

**Toxicity:** no data available

**Persistence and degradability:** no data available

**Bioaccumulative potential:** no data available

**Mobility in soil:** no data available

**Results of PBT and vPvB assessment:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

## SECTION 13: DISPOSAL CONSIDERATIONS

**Product:** Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging:** Dispose of as unused product.

## SECTION 14: TRANSPORT INFORMATION

### DOT Transportation Data (49 CFR 172.101):

**Shipping Name:** Not regulated

**Shipping Symbols:** Not Applicable

**Hazard Class:** Not regulated

**ID No.:** Not regulated

**Packing Group:** Not Applicable

**Label:** Not Applicable

**Special Provisions (172.102):**

Not Applicable

### Packaging Authorizations

a) **Exceptions:** Not Applicable

b) **Non-bulk Packaging:** Not Applicable

c) **Bulk Packaging:** Not Applicable

### Quantity Limitations

a) **Passenger, Aircraft, or Railcar:** Not Applicable

b) **Cargo Aircraft Only:** Not Applicable

### Vessel Stowage Requirements

a) **Vessel Stowage:** Not Applicable

b) **Other:** Not Applicable

## SECTION 15: REGULATORY INFORMATION

### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

Disilver oxide CAS-No. 20667-12-3 Revision Date: 2007-07-01

**SARA 311/312 Hazards**

Reactivity Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

Disilver oxide CAS-No.20667-12-3 Revision Date:2007-07-01

**New Jersey Right To Know Components**

Disilver oxide CAS-No.20667-12-3 Revision Date: 2007-07-01

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## SECTION 16: OTHER INFORMATION

**Prepared By:** Zuniga, A.

**Revision Notes:** Not Applicable

**Additional Hazard Rating Systems:** Not Applicable

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