

CHAITANYA CHS, 2<sup>nd</sup> FLOOR, OFFICE # 206, SIDDHARTH NAGAR, S.V.ROAD, GOREGAON (W), MUMBAI 400062, MH, INDIA.  
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**MATERIAL SAFETY DATA SHEET (MSDS)****SILVER OXIDE AR****1. Product Identification**

**Synonyms:** Argenticoxide; silver peroxide; disilver oxide  
**CAS No.:** 20667-12-3

Product Coad: S0183800100

**Molecular Weight:** 231.74  
**Chemical Formula:** Ag<sub>2</sub>O

**2. Composition/Information on Ingredients**

Ingredient	CAS No	Percent	Hazardous
Silver Oxide Purified	20667-12-3	90 - 100%	Yes

**3. Hazards Identification****Emergency Overview**

**DANGER! OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.**

Health Rating: 2 - Moderate

Flammability Rating: 1 - Slight

Reactivity Rating: 3 - Severe (Oxidizer)

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: Yellow (Reactive)

**Potential Health Effects**

**Inhalation:** May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath. May cause nasal bleeding. Exposures above the TLV may result in accumulation of silver in the body (argyria). Symptoms may include a permanent unsightly blue-gray pigmentation of the skin, mucous membranes and eyes.

**Ingestion:** Large oral doses may cause irritation to the gastrointestinal tract. Symptoms may include abdominal spasms, faintness, muscular spasms and argyria.

**Skin Contact:** May cause irritation with redness and pain. May cause bluish discoloration.

**Eye Contact:** May cause irritation, redness and pain. May cause bluish discoloration.

**Chronic Exposure:** Prolonged or repeated inhalation, application or ingestion of silver compounds may cause a permanent bluish discoloration of the skin and mucous membranes.

**Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders may be more susceptible to the effects of this material.

**4. First Aid Measures**

**Inhalation:** Remove to fresh air. Get medical attention for any breathing difficulty.

**Ingestion:** Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

**5. Fire Fighting Measures**

**Fire:** Fire hazard when in contact with organic materials or ammonia.

**Explosion:** Explosion hazard when in contact with ammonia.

**Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide. Do not allow water runoff to enter sewers or waterways.

**Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

**6. Accidental Release Measures**

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### SILVER OXIDE AR

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

#### 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage and moisture. Isolate from any source of heat or ignition. Avoid storage on wood floors. Separate from incompatibles, combustibles, organic or other readily oxidizable materials. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

#### 8. Exposure Controls/Personal Protection

##### Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):

0.01 mg/m<sup>3</sup> (TWA) for silver metal dust and fume as Ag

-ACGIH Threshold Limit Value (TLV):

0.01 mg /m<sup>3</sup> (TWA) for soluble silver compounds as Ag

**Ventilation System:** A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):** If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece particulate respirator (NIOSH type N100 filters) may be worn for up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:** Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:** Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

#### 9. Physical and Chemical Properties

**Appearance:** Heavy dark, brownish-black powder.

**Odor:** Odorless.

**Solubility:** 0.0017 gm/ 100 ml water @ 20C (68F)

**Density:** 7.22

**pH:** No information found.

**% Volatiles by volume @ 21C (70F):** 0

**Boiling Point:** Not applicable.

**Melting Point:** 300C (572F) Decomposes.

**Vapor Density (Air=1):** No information found.

**Vapor Pressure (mm Hg):** No information found.

**Evaporation Rate (BuAc=1):** No information found.

#### 10. Stability and Reactivity

**Stability:** Strong oxidizing agent. The dry solid is stable @ 100C (212F) for 18 hours.

**Hazardous Decomposition Products:** Converts to silver and oxygen when heated to decomposition.

**Hazardous Polymerization:** Will not occur.

**Incompatibilities:** Copper oxide, ammonia, hydrogen sulfide, magnesium, antimony sulfide, mercury

sulfide, nitroalkanes, organic materials and their vapors, reducing agents, and many other substances. Please refer to the NFPA publication 'Fire Protection Guide on Hazardous Materials' most recent edition for details.

**Conditions to Avoid:** Heat, flame, ignition sources, air, light and incompatibles.

#### 11. Toxicological Information

Oral rat LD50: 2820 mg/kg

---NTP Carcinogen---

Ingredient	Known	Anticipated	IARC Category
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Silver Oxide Purified (20667-12-3)    No    No    None

#### 12. Ecological Information

**Environmental Fate:** No information found.

**Environmental Toxicity:** No information found.

#### 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

#### 14. Transport Information

##### Domestic (Land, D.O.T.)

**Proper Shipping Name:** OXIDIZING SOLID, N.O.S. (SILVER OXIDE PURIFIED)

**Hazard Class:** 5.1

**UN/NA:** UN1479

Packing Group: II

**Information reported for product/size:** 4OZ

##### International (Water, I.M.O.)

**Proper Shipping Name:** OXIDIZING SOLID, N.O.S. (SILVER OXIDE PURIFIED)

**Hazard Class:** 5.1

**UN/NA:** UN1479

Packing Group: II

**Information reported for product/size:** 4OZ

#### 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Silver Oxide Purified (20667-12-3)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

--Canada--

Ingredient	Korea	DSL	NDSL	Phil.
Silver Oxide Purified (20667-12-3)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

-SARA 302-    -----SARA 313-----

Ingredient	RQ	TPQ	List	Chemical Catg.
Silver Oxide Purified (20667-12-3)	No	No	No	Silver compo

-----\Federal, State & International Regulations - Part 2\-----

-RCRA-    -TSCA-

Ingredient	CERCLA	261.33	8(d)
Silver Oxide Purified (20667-12-3)			

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Silver Oxide Purified (20667-12-3)      No      No      No

Chemical Weapons Convention: No    TSCA 12(b): No    CDTA: No

SARA 311/312: Acute: Yes    Chronic: No    Fire: Yes Pressure: No

Reactivity: Yes      (Pure / Solid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

**16. Other Information**

**NFPA Ratings:** Health: **1** Flammability: **1** Reactivity: **2** Other: **Oxidizer**

**Label Hazard Warning:**

DANGER! OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

**Label Precautions:** Avoid contact with eyes, skin and clothing. Avoid breathing dust.

Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Avoid contact of silver oxide with organic materials and their vapors, strong ammonia and alkalis.

**Label First Aid:** If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Product Use:** Laboratory Reagent.

In accordance with REACH Regulation (CE) N° 1907/2006 and with CLP Regulation (CE) N° 1272/2008

**DISCLAIMER:**

- **SUVCHEM** Products are to be used as Lab Chemicals for R&D only. Not for drug, medicinal, household or other uses.
- **SUVCHEM** shall not be responsible for any damage resulting from handling or from contact with the above product.
- **SUVCHEM** provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.

**End of document**