

# MATERIAL SAFETY DATA SHEET

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## Section 1. Identification

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<b>Company:</b>	Troemner LLC	<b>Emergency number:</b>	847-520-4455
<b>Address:</b>	201 Wolf Drive	<b>Information number:</b>	847-520-4455
	Thorofare, NJ 08086-0087	<b>Date Prepared:</b>	09-26-08
<b>Product Name:</b>	Aluminum Oxide White, Alumina		

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## Section 2. Composition/Identity Information

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Component	CAS Number	OSHA-PEL	ACGIH-TLV	Percent
Aluminum Oxide <sup>1</sup>	1344-28-1	15mg/m <sup>3</sup> respirable fraction	10mg/m <sup>3</sup> TWA respirable fraction	94-99

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### Other Oxides total less than 1%

<sup>1</sup> Non-fibrous form of aluminum oxide

PEL means OSHA Permissible Exposure Limit

TLV means American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value

TWA means 8 hour Time Weighted Average

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## Section 3. Physical and Chemical Data

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<b>Boiling Point:</b>	N/A	<b>Vapor Density:</b>	N/A	<b>Specific Gravity:</b>	3.95
<b>Melting Point:</b>	2070°C	<b>Vapor Pressure:</b>	N/A	<b>Evaporation Rate:</b>	N/A
<b>Solubility in Water:</b>	Insoluble	<b>Solubility in Other Solvent:</b>	N/A		

**Appearance and odor:** White; granular to powder; odorless

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## Section 4. Fire and Explosion Data

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<b>Flash Point:</b>	None	<b>Autoignition Temperature:</b>	Will not burn
<b>Flammable Limits:</b>	LEL: N/A UEL: N/A		
<b>Extinguishing Media:</b>	Will not burn. May be used to extinguish fires.		
<b>Special Fire Fighting Procedures:</b>	None. Will not burn.		
<b>Unusual Fire and Explosion Hazards:</b>	None		

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## Section 5. Reactivity Data

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<b>Stability:</b>	Stable	<b>Conditions to Avoid:</b>	None
<b>Materials to Avoid:</b>	None	<b>Hazardous Decomposition Products:</b>	None
<b>Hazardous Polymerization:</b>	Will not occur		

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## Section 6. Health Hazard Data

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<b>Ingestion:</b>	No known adverse effects for normal, incidental ingestion.
<b>Eye Contact:</b>	May cause abrasion and irritation.
<b>Skin Contact:</b>	Not absorbed through the skin. May cause abrasions.
<b>Inhalation:</b>	May cause coughing or shortness of breath. Chronically may affect breathing capacity.

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**Section 7. First Aid Measures**

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**Inhalation:** If there is gross inhalation of dust causing coughing and shortness of breath, remove victim to fresh air. If breathing has stopped, perform artificial respiration. Seek medical attention.

**Ingestion:** If large amounts are swallowed, get medical attention.

**Eye Contact:** Flush eyes with large amounts of water. If irritation persists, get medical attention.

**Skin Contact:** Wash with soap and water. Obtain first aid or medical assistance as needed.

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**Section 8. Storage, Handling, and Use Protection Information**

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**Normal Storage and Handling** Avoid breathing dust. Use adequate ventilation and dust collection. Avoid breakage of bagged material and spills of bulk material. Use good housekeeping to prevent accumulation of dust in work area. Avoid creating of respirable dust.

See OSHA Hazard Communication Standard 29 CFR 1910-94 (Ventilation).

**Ventilation:** Use sufficient local mechanical exhaust as required to maintain level of respirable dust below the Permissible Exposure Limit or Threshold Limit Value.

See ACGIH "Industrial Ventilation - A Manual for Recommended Practice" (latest edition).

**Respiratory Protection:** Use appropriate NIOSH approved respiratory protection for respirable dust if PEL or TLV are exceeded.

See OSHA (29 CFR 1910.134) and MSHA (30 CFR Parts 56 and 57) and NIOSH "Respirator Decision Logic".

**Eye Protection:** Safety glasses with side shields or goggles recommended.

**Protective Gloves:** Not normally necessary.

**Other Protective Equipment:** As appropriate for the work environment.

**Cleanup and Spill Information:** Collect using dustless methods (HEPA vacuum or flush with water) to minimize generation of airborne respirable dust.

**Waste Disposal Method:** If uncontaminated, approved for disposal as an inert, non metallic mineral in accordance with federal, state and local regulations. If contaminated, the user must assess the proper disposal for the material appropriate for the contamination.

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**Section 9. Other Regulatory Information**

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**U.S. Department of Transportation:** Aluminum Oxide is NOT a hazardous material for purposes of transportation.

US DOT Table of Hazardous Materials, 49 CFR 172.101.

**Resource Conservation and Recovery Act:** Aluminum Oxide is NOT classified as a hazardous material under RCRA or its regulations, 40 CFR 261.

**Toxic Substances Control Act:** Aluminum Oxide is ON the EPA TSCA Inventory under CAS #1344-28-1

**Comprehensive Environmental Response Compensation and Liability Act:** Aluminum Oxide is NOT classified as a hazardous substance under CERCLA regulations, 40 CFR 302.

**Superfund Amendments and Reauthorization Act (SARA) Emergency Planning and Community Right to Know Act:** Aluminum Oxide is NOT an extremely hazardous substance in Section 302 and is NOT a toxic chemical subject to the requirements of Section 313.

**Canadian Environmental Protection Act:** Aluminum Oxide is ON the Canadian Domestic Substances List (DSL).

**National Fire Protection Association (NFPA) Hazard Rating:**

Health: 1

Fire: 0

Reactivity: 0

**Hazardous Material Information System (HMIS) Hazard Rating:**

Health: 1

Flammability: 0

Reactivity: 0

Protective Equipment: A

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**Note:** The information contained in this Material Safety Data Sheet is taken from sources believed to be accurate and correct. Troemner makes no expressed or implied warranty with respect to the accuracy of the information or the suitability of the recommendations. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by purchase, resale, use or exposure to our product. Customers/users of the product must comply with all federal, state and local laws and regulations.

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NAIF = No applicable information found

N/A = Not applicable

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# Selenium

C.A.S. No. 7782-49-2

## CAUTION!

- This product is selenium for industrial use only.
- Keep Out of Reach of Children. Not for Food, Drug, Cosmetic or Pesticide Use.
- Dust or fume created during handling and processing may be harmful if inhaled or swallowed. Overexposure may result in bronchial irritation and nausea.
- **DANGER!** Contact with acids and reducing agents may produce highly toxic hydrogen selenide gas.

## PRECAUTIONS

- Use only with effective ventilation to keep exposure below OSHA limits or with approved respiratory protection.
- Wash thoroughly after handling and before eating, drinking or smoking. Do not eat, drink or smoke in work areas.
- Use vacuum sweeper for dust clean up; do not wash into sewer.
- Store dust in closed, labeled containers only.
- Dispose of waste and empty containers in compliance with federal, state and local laws. Do not reuse empty containers.

## FIRST AID

**Inhalation:** Remove from exposure; place individual under care of a physician.

**Swallowing:** Induce vomiting in conscious individuals only.  
Immediately call a physician.

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## CHEMTREC EMERGENCY NUMBER (800) 424-9300

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For further information, refer to OSHA Standard and Material Safety Data Sheet.

## TROEMNER

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# SELENIUM

## A. GENERAL INFORMATION

### TRADE NAME (COMMON NAME OR SYNONYM)

Selenium

### CHEMICAL NAME

Selenium

### FORMULA

Se

### ADDRESS (NO., STREET, CITY, STATE AND ZIP CODE)

ASARCO  
180 Maiden Lane  
New York, New York 10038      Phone: 212-510-2000

### CONTACT

General Information - Department of Environmental Science	DAY	801-262-2459
	NIGHT	801-943-1754
First Aid Information (Dr. C. H. Hine)	DAY	415-777-2213
	NIGHT	415-777-2214
Transportation Emergencies - CHEMTREC		800-424-9300

## B. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	C.A.S. #	WT. %	PERMISSIBLE AIR CONCENTRATION
Selenium	7782-49-2	99.7+	0.2 mg/cu.m.  <input checked="" type="checkbox"/> OSHA <input type="checkbox"/> OTHER

## C. FIRST AID MEASURES

Inhalation: Remove immediately from exposure; place individual under care of physician.  
Ingestion: Induce vomiting in a conscious individual; immediately call a physician.  
Skin: Wash thoroughly with soap and water.  
Eyes: Immediately flush eyes with large amounts of water.

**D.**

**HEALTH**

**INHALATION**

Bronchial irritation (pneumonitis), gastrointestinal distress, and irritation of the upper respiratory tract may occur. Other symptoms include metallic taste, pallor, irritability, fatigue, and garlic odor of breath.

**INGESTION**

Ingestion may cause gastrointestinal distress and other symptoms as above.

**SKIN**

Selenium fumes (SeO2) reacts with water or perspiration to form selenious acid which is corrosive to skin. Dermatitis may result. Some Se compounds may be absorbed through the skin.

**EYES**

Selenium dioxide (SeO2) entering the eye causes the development of a pink allergic-type reaction of the eyelids which may become puffy. Conjunctivitis may occur.

**MEDICAL CONDITIONS POSSIBLY AGGRAVATED**

Diseases of the liver and kidneys.

**UNUSUAL CHRONIC TOXICITY**

Chronic exposure to selenium may result in increased dental caries.

**FIRE AND EXPLOSION**

<b>FLASH POINT</b> NOT APPLICABLE <input type="checkbox"/> OPEN CUP <input type="checkbox"/> CLOSED CUP	<b>°C</b>	<b>AUTO IGNITION TEMPERATURE</b> NOT APPLICABLE	<b>FLAMMABLE LIMITS IN AIR (% BY VOL.)</b> NOT APPLICABLE
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**UNUSUAL FIRE AND EXPLOSION HAZARDS**

Finely divided dust may burn, if ignited, with evolution of corrosive selenium dioxide.

**E. PRECAUTIONS/PROCEDURES**

**FIRE EXTINGUISHING AGENTS RECOMMENDED**

Class D extinguisher; dry powder type

**FIRE EXTINGUISHING AGENTS TO AVOID**

None

**SPECIAL FIRE FIGHTING PRECAUTIONS**

Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in fire.

**ENGINEERING CONTROLS**

Local exhaust ventilation is required for screening, heating, dumping, shoveling, or other operations where excessive airborne exposures may occur.

**NORMAL HANDLING**

**STORAGE**

AVOID storage near acids or bases.

**SPILL OR LEAK**

A clean-up procedure which minimizes exposure is required. Vacuuming is preferred. Place all material in closed containers. Do not use compressed air for cleaning. Use approved respiratory protection if possibility of dust/fume exposure exists.

**SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS**

**Label signal word:**

**PERSONAL HYGIENE**

Practice good housekeeping and personal hygiene procedures. No tobacco or food in work area. Wash thoroughly before eating or smoking. Avoid ingestion or inhalation. Take a shower and change clothes at end of shift. Do not wear contaminated clothing home. Do not use compressed air for blowing dust off of clothes.

**F.****RESPIRATORY PROTECTION**

NIOSH/MSHA approved respirator for toxic dust and/or fume.

**EYES AND FACE**

Chemical goggles, safety glasses or face shield required for operations where eye contact may result.

**HANDS, ARMS, AND BODY**

Gloves and protective clothing are required if skin contact is appreciable or material is heated. Work clothing should not be worn home.

**OTHER CLOTHING AND EQUIPMENT****G. PHYSICAL DATA****MATERIAL IS (AT NORMAL CONDITIONS):**

LIQUID       SOLID       GAS

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**APPEARANCE AND ODOR**

Dark red to blue gray, odorless

**BOILING POINT**

684.9 C

**MELTING POINT**

40-50 C (amorph) ; 217 C (cryst)

**SPECIFIC GRAVITY**

(H<sub>2</sub>O = 1)

4.79

**VAPOR DENSITY**

(AIR = 1)

NOT APPLICABLE

**SOLUBILITY IN WATER**

(% by Weight)

INSOLUBLE

**pH**

NOT APPLICABLE

**VAPOR PRESSURE**

mm Hg at 20°C     (PSIG)   

NOT APPLICABLE

**EVAPORATION RATE**

(Butyl Acetate = 1)        (Ether = 1)   

NOT APPLICABLE

**% VOLATILES BY VOLUME**

(At 20°C)

NOT APPLICABLE

**H. REACTIVITY DATA****STABILITY**

UNSTABLE     STABLE

**CONDITIONS TO AVOID**

NOT APPLICABLE

**INCOMPATIBILITY (MATERIALS TO AVOID)**

Strong acids and bases, halogen gases, strong oxidizers, sodium, potassium, or nascent hydrogen may cause violent reactions or explosions.

**HAZARDOUS DECOMPOSITION PRODUCTS**

Under reducing conditions (i.e., any strong acid or base plus as active metal) or in the presence of nascent hydrogen, highly toxic hydrogen selenide gas (H<sub>2</sub>Se, TLV=0.05ppm) may be evolved. At temperatures above the melting point corrosive SeO<sub>2</sub> may be generated.

**HAZARDOUS POLYMERIZATION**

MAY OCCUR     WILL NOT OCCUR

**CONDITIONS TO AVOID**

NOT APPLICABLE

