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# Material Safety Data Sheet

## Molecular Sieve, Type 4a, 4-8 mesh MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Molecular Sieve, Type 4a, 4-8 mesh

**Catalog Codes:** SLM2026

**CAS#:** Mixture.

**RTECS:** Not applicable.

**TSCA:** TSCA 8(b) inventory: Quartz; Magnesium oxide; Aluminum oxide; Sodium Oxide; Silicon Dioxide, Amorphous

**CI#:** Not applicable.

**Synonym:** Molecular Sieve, Type 4a, 4-8 mesh; Molecular Sieve, Activated, Type 4A, 4-8 Mesh

**Chemical Name:** Not applicable.

**Chemical Formula:** Not applicable.

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Quartz	14808-60-7	<3
Magnesium oxide	1309-48-4	<5
Aluminum oxide	1344-28-1	<30
Sodium Oxide	1313-59-3	<30
Silicon Dioxide, Amorphous	7631-86-9 or 112926-00-8	<50
	Acute: >10000 mg/kg [Rat].	
	Acute: >5000 mg/kg [Rabbit].	

**Toxicological Data on Ingredients:** Quartz LD50: Not available. LC50: Not available. Magnesium oxide LD50: Not available. LC50: Not available. Aluminum oxide LD50: Not available. LC50: Not available. Sodium Oxide LD50: Not available. LC50: Not available. Silicon Dioxide, Amorphous:

### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. The amount of tissue damage depends on length of contact. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

**Potential Chronic Health Effects:**

Slightly hazardous in case of inhalation. **CARCINOGENIC EFFECTS:** Classified 1 (Proven for human.) by IARC, 1 (Clear evidence.) by NTP, + (Proven.) by OSHA, + (Proven.) by NIOSH [Quartz]. Classified A2 (Suspected for human.) by ACGIH [Quartz]. Classified A4 (Not classifiable for human or animal.) by ACGIH [Aluminum oxide]. Classified A3 (Proven for animal.) by ACGIH [Silicon Dioxide, Amorphous]. Classified 3 (Not classifiable for human.) by IARC [Silicon Dioxide, Amorphous]. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. [Quartz]. **TERATOGENIC EFFECTS:** Classified None. for human [Aluminum oxide]. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to lungs. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

**Section 4: First Aid Measures****Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Serious Skin Contact:** Not available.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation:** Not available.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Serious Ingestion:** Not available.

**Section 5: Fire and Explosion Data**

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:**

Powerful oxiders may cause fire. [Quartz] Chlorine Trifluoride reacts violently with Aluminum Oxide producing a flame. [Aluminum Oxide] Magnesium Oxide may ignite and explode when heated with sublimed sulfur, magnesium powder, or aluminum powder. It reacts violently with interhalogens (bromine pentafluoride, chlorine trifluoride) and produces flame. When combined with phosphorus pentachloride, it incandesces. [Magnesium Oxide]

**Special Remarks on Explosion Hazards:**

Powerful oxiders or metals may cause explosions. [Quartz] Magnesium Oxide may ignite and explode when heated with sublimed sulfur, magnesium powder, or aluminum powder. [Magnesium Oxide]

**Section 6: Accidental Release Measures****Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

**Section 7: Handling and Storage****Precautions:**

Keep container dry. Do not ingest. Do not breathe dust. Never add water to this product. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic

**Section 8: Exposure Controls/Personal Protection****Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:**

Splash goggles. Synthetic apron. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

Quartz TWA: 0.05 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] [1999] Inhalation Respirable. TWA: 0.1 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation Respirable. TWA: 0.3 (mg/m<sup>3</sup>) [United Kingdom (UK)] Inhalation Respirable. TWA: 0.2 (mg/m<sup>3</sup>) [Australia] Inhalation TWA: 0.1 (mg/m<sup>3</sup>) [Canada] Inhalation Respirable. Magnesium oxide TWA: 10 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] Inhalation Total. TWA: 4 STEL: 10 (mg/m<sup>3</sup>) [United Kingdom (UK)] Inhalation Respirable. TWA: 15 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation Total. TWA: 10 (mg/m<sup>3</sup>) [United Kingdom (UK)] Total. Aluminum oxide TWA: 10 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] Inhalation Total. TWA: 10 (mg/m<sup>3</sup>) [Canada] Inhalation Total. TWA: 5 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation Respirable. TWA: 15 from OSHA (PEL) [United States] Inhalation Total. TWA: 10 [United Kingdom (UK)] Inhalation Total. TWA: 4 [United Kingdom (UK)] Inhalation Respirable. Silicon Dioxide, Amorphous TWA: 2 (mg/m<sup>3</sup>) [Australia] Inhalation Respirable. TWA: 6 (mg/m<sup>3</sup>) [United Kingdom (UK)] Inhalation Respirable.<sup>33</sup> Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Beads Solid pellets.)

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** Not applicable.

**Color:** Beige. Tan. (Light.)

**pH (1% soln/water):** Not applicable.

**Boiling Point:** Not available.

**Melting Point:** 2800°C (5072°F) based on data for: Magnesium oxide. Weighted average: 1692.71°C (3078.9°F)

**Critical Temperature:** Not available.

**Specific Gravity:** Weighted average: 2.9 (Water = 1)

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** The product is insoluble in water and oil.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Is not dispersed in cold water, hot water.

**Solubility:** Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials, moisture, excess dust generation

**Incompatibility with various substances:**

May be slightly reactive to reactive with oxidizing agents, acids Slight reactive with moisture.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Hygroscopic. Reacts with water to evolve heat. Sudden contact with high concentrations of chemicals having high heats of adsorption such as elefins, HCl, etc. When first wetted, the product can heat up to the boiling point of water. Flood with water to cool material. [Molecular Sieve mixture] Incompatible with fluoride, oxygen difluoride, chlorine trifluoride. May react vigorously with vinyl acetate vapor. [Silicon Dioxide] Incompatibility with powerfull oxiders: fluorine, chlorine trifluoride, manganese trioxide, oxygen diflluoride, hydrogen peroxide, etc.; Incompatible with acetylene and ammonia. This chemical is attacked by Hydrogen Fluoride. Silica will dissolve in Hydrofluoric Acid and produce the corrosive gas Silicon Tetrafluoride (SiF4). [Quartz] Chlorine Trifluoride reacts violently with Aluminum Oxide producing a flame. Ethylene oxide may polymerize violently when in contact with highly catalytic surfaces such as pure Aluminum Oxide. Reacts with hot chlorinated rubber. [Aluminum Oxide] Reacts violently with water [Sodium Oxide] Reacts violently with ClF3 (Chlorine Trifluoride) and PCI5 (Phosphorous Pentachloride). Hygroscopic. Air Sensitrive. Readily absorbs moisture and carbon dioxide when exposed to air. Hydrates slowly in contact with moisture. Takes up carbon dioxide and water from the air. This happens more readily for the light form vs. the heavy form. Slight alkaline reaction to water. [Magnesium Oxide]

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:**

Molecular Sieve, type 4a, 4-8 mesh: Acute oral toxicity (LD50): >32000 mg/kg [Rat]. Acute dermal toxicity (LD50): >2000 mg/kg [Rabbit].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified 1 (Proven for human.) by IARC, 1 (Clear evidence.) by NTP, + (Proven.) by OSHA, + (Proven.) by NIOSH [Quartz]. Classified A2 (Suspected for human.) by ACGIH [Quartz]. Classified A4 (Not classifiable for human or animal.) by ACGIH [Aluminum oxide]. Classified A3 (Proven for animal.) by ACGIH [Silicon Dioxide, Amorphous]. Classified 3 (Not classifiable for human.) by IARC [Silicon Dioxide, Amorphous]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Quartz]. TERATOGENIC EFFECTS: Classified None. for human [Aluminum oxide]. May cause damage to the following organs: lungs.

**Other Toxic Effects on Humans:** Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:**

Contains about 3% Quartz which may cause cancer. Quartz has been classified by IARC as a class 1 carcinogen.

**Special Remarks on other Toxic Effects on Humans:**

Potential Health Effects Skin: May cause skin irritation. The product gets hot as it first adsorbs water. Eyes: Dust and /or product may cause eye discomfort and/or irritation. Ingestion: The product gets hot as it first adsorbs water. Burns to moist body tissues may result if contact is prolonged. Inhalation: Exposure to dust particles generated from this material may cause irritation of the respiratory tract and may cause lung injury/cancer. Repeated and prolonged inhalation of crystalline silica in the form of quartz from occupational sources may cause cancer.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

## Section 15: Other Regulatory Information

### Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Quartz California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Quartz Illinois toxic substances disclosure to employee act: Magnesium oxide; Aluminum oxide Rhode Island RTK hazardous substances: Magnesium oxide; Aluminum oxide Pennsylvania RTK: Quartz; Magnesium oxide; Silicon Dioxide, Amorphous Florida: Quartz Minnesota: Quartz; Magnesium oxide; Aluminum oxide; Silicon Dioxide, Amorphous Massachusetts RTK: Quartz; Magnesium oxide; Aluminum oxide; Silicon Dioxide, Amorphous New Jersey: Quartz; Magnesium oxide; Aluminum oxide; Silicon Dioxide, Amorphous New Jersey spill list: Aluminum oxide TSCA 8(b) inventory: Quartz; Magnesium oxide; Aluminum oxide; Sodium Oxide; Silicon Dioxide, Amorphous SARA 313 toxic chemical notification and release reporting: Aluminum oxide 29.7%

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

### Other Classifications:

**WHMIS (Canada):** Not controlled under WHMIS (Canada).

### DSCL (EEC):

R14- Reacts with water. R45- May cause cancer. S1/2- Keep locked up and out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37- Wear suitable protective clothing and gloves. S39- Wear eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label. S53- Avoid exposure - obtain special instructions before use.

### HMIS (U.S.A.):

**Health Hazard:** 1

**Fire Hazard:** 0

**Reactivity:** 1

**Personal Protection:**

### National Fire Protection Association (U.S.A.):

**Health:** 1

**Flammability:** 0

**Reactivity:** 1

**Specific hazard:**

### Protective Equipment:

Gloves. Synthetic apron. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

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