



## MATERIAL SAFETY DATA SHEET

### Magnesium Oxide, Light

#### 1. Product Identification

**Synonyms:** Calcinated magnesia; Magnesia; Calcined Magnesite

**CAS No.:** 1309-48-4

**Molecular Weight:** 40.30

**Chemical Formula:** MgO

**Product Codes:** M162

#### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Magnesium Oxide, Light	1309-48-4	93 - 100%	Yes

#### 3. Hazards Identification

##### EMERGENCY OVERVIEW

**CAUTION! MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT.**

Health Rating: 2 - Moderate

Flammability Rating: 0 - None

Reactivity Rating: 2 - Moderate

Contact Rating: 1 - Slight

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

Storage Color Code: Green (General Storage)

##### Potential Acute Health Effects:

Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

##### **Inhalation:**

Nuisance dust. May cause irritation to the nasal passages, respiratory tract. Inhalation can cause a flu-like illness (metal fume fever). This 24- to 48-hour illness is characterized by chills, fever, aching muscles, dryness in the mouth and throat and headache.

##### **Ingestion:**

Magnesium oxide is slowly absorbed. Ingestion may cause rapid bowel evacuation.

##### **Skin Contact:**

No adverse effects expected.

##### **Eye Contact:**

May cause irritation.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition..

**4. First Aid Measures**

**Inhalation:**

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

**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. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin Contact:**

Wash exposed area with soap and water. Cover the irritated skin with an emollient. Get medical advice if irritation develops.

**Serious Skin Contact:**

Not available.

**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. Cold water may be used. WARM water MUST be used. Get medical attention if irritation occurs.

**5. Fire Fighting Measures**

**Fire:**

Not considered to be a fire hazard.

**Explosion:**

Magnesium oxide reacts violently or ignites with interhalogens such as Chlorine trifluoride (ClF<sub>3</sub>) or Bromine pentafluoride (BrF<sub>5</sub>), and incandescently with Phosphorus pentachloride (PCl<sub>5</sub>).

**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.

**Special Remarks on Explosion Hazards:**

Magnesium Oxide may ignite and explode when heated with sublimed sulfur, magnesium powder, or aluminum powder.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Products of Combustion:**

Not available.

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

Not applicable.

**Special Information on Fire Hazards:**

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.

**Fire Fighting Media and Instructions:**

Not applicable.

**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****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:**

Use a shovel to put the material into a convenient waste disposal container. 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.

**7. Handling and Storage****Precautions:**

Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids.

**Storage:**

Moisture Sensitive. Air Sensitive. Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 24°C (75.2°F).

**8. Exposure Controls/Personal Protection****Airborne Exposure Limits:**

Magnesium Oxide:

- OSHA Permissible Exposure Limit (PEL) -

15 mg/m<sup>3</sup> (TWA).

- ACGIH Threshold Limit Value (TLV) -

10 mg/m<sup>3</sup> (TWA), Inhalable fraction, A4 Not classifiable as a human carcinogen.

**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.

**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:**

Safety glasses. Lab coat. 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.

**Personal Respirators:**

If the exposure limit is exceeded, a full face piece respirator with dust/mist filter may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear protective gloves and clean body-covering clothing.

**Eye Protection:**

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

**9. Physical and Chemical Properties****Appearance:**

Bulky white powder.

**Odor:**

Odorless.

**Solubility:**

Insoluble in water.

**Density:**

3.58 @ 25C (77F).

**pH:**

10.3.

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

0.

**Boiling Point:**

3600C (6512F).

**Melting Point:**

2800C (5072F).

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Molecular Weight:**

40.30

**Evaporation Rate (BuAc=1):**

No information found.

**10. Stability and Reactivity****Stability:**

Stable under ordinary conditions of use and storage. Absorbs carbon dioxide and water from air.

**Conditions to Avoid:**

Air, moisture, and incompatibles.

**Conditions of Instability:**

Incompatible materials, moisture, air.

**Incompatibilities:**

Acids, interhalogens, phosphorus pentachloride, and chlorine trifluoride.

**Hazardous Decomposition**

None known.

**Special Remarks on Reactivity:**

Reacts violently with ClF<sub>3</sub> (Chlorine Trifluoride) and PCl<sub>5</sub> (Phosphorous Pentachloride). Hygroscopic. Air Sensitive. 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.

**Corrosivity:**

Non-corrosive in presence of glass.

**Hazardous Polymerization:**

Will not occur.

**11. Toxicological Information****Routes of Entry:**

Inhalation. Ingestion.

**Toxicity to Animals:**

LD<sub>50</sub>: Not available. LC<sub>50</sub>: Not available.

**Chronic Effects on Humans:**

Not available.

**Other Toxic Effects on Humans:**

Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

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

May cause cancer (tumorigenic) based on animal data. No human data found.

**Special Remarks on other Toxic Effects on Humans:****Acute Potential Health Effects:****Skin:**

Mild Alkali. May cause skin irritation.

**Eyes:**

Mild Alkali. May cause eye irritation.

**Inhalation:**

May cause respiratory tract irritation.

**Ingestion:**

May cause gastrointestinal tract irritation with nausea, vomiting, and diarrhea.

**Chronic Potential Health Effects:**

Inhalation:

Repeated or prolonged exposure may result in Metal Fume Fever. Metal Fume Fever is a flu-like condition consisting of fever, chills, sweating, aches, pains, cough, weakness, headache, nausea, vomiting, and breathing difficulty. There is no permanent ill-effect. Metal Fume Fever resulting from Magnesium Oxide fumes has reportedly occurred in foundry workers. Repeated or prolonged exposure may also affect the blood and brain based on animal data. No human data found

**12. Ecological Information****Ecotoxicity:**

May cause alkalization of water rendering it inhospitable to aquatic life.

**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 product itself and its products of degradation are not toxic.

**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.

**Waste Disposal:**

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

**14. Transport Information****DOT Classification:**

Not a DOT controlled material.

**Identification:**

Not applicable.

**Special Provisions for Transport:**

Not available.

**Protective Equipment:**

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

## 15. **Other Information**

**NFPA Ratings:** Health: **1** Flammability: **0** Reactivity: **0**

**Label Hazard Warning:**

CAUTION! MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT.

**Label Precautions:**

Avoid contact with eyes, skin and clothing.

Avoid breathing dust.

Use with adequate ventilation.

Wash thoroughly after handling.

Keep container closed.

**Label First Aid:**

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.

**Revision Information:**

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.*



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