



# SAFETY DATA SHEET

## 1. Identification

**Product identifier** Ladlemag®  
**Recommended use** For Industrial Use Only, Refractory Sand  
**Recommended restrictions** None.

### Manufacturer/Supplier information

**Company name:** FRC Global  
**Address:** 1000 N. West St.  
Suite 1200 #3008  
Wilmington, DE 19801  
**Product Support/Technical Services**  
**Phone:** (514) 931-5711  
**Website** [www.FRCglobal.com](http://www.FRCglobal.com)

Emergency telephone number: Corporate Office: (514) 931-5711  
Technical Services: (514) 931-5711  
Contact E-Mail: [LadleDr@FRCglobal.com](mailto:LadleDr@FRCglobal.com)

## 2. Hazard(s) identification

**Physical hazards** Not classified.  
**Health hazards** Not classified.  
**Environmental hazards** Not classified.  
**OSHA defined hazards** Not classified.  
**Label elements**  
**Hazard symbol** None.  
**Signal word** None.  
**Hazard statement** The mixture does not meet the criteria for classification.  
**Precautionary statement**  
**Prevention** Observe good industrial hygiene practices.  
**Response** Wash hands after handling.  
**Storage** Store away from incompatible materials.  
**Disposal** Dispose of waste and residues in accordance with local authority requirements.

**Hazard(s) not otherwise classified (HNOC)**  
None known.

**Supplemental information** None.

## 3. Composition/information on ingredients

| Chemical Name                  | Common Name/Synonyms         | CAS Number  | % |
|--------------------------------|------------------------------|-------------|---|
| MgO                            | Magnesium Oxide              | 1309-48-4   | * |
| SiO <sub>2</sub>               | Amorphous silica             | 112926-00-8 | * |
| Fe <sub>2</sub> O <sub>3</sub> | Iron (III) Oxide             | 1309-37-1   | * |
| Al <sub>2</sub> O <sub>3</sub> | Aluminum Oxide (Non-Fibrous) | 1344-28-1   | * |
| CaO                            | Calcium Oxide                | 1308-38-9   | * |

|                                    |                   |            |   |
|------------------------------------|-------------------|------------|---|
| <b>H<sub>3</sub>BO<sub>3</sub></b> | Trihydroxidoboron | 10043-35-3 | * |
| <b>Others</b>                      |                   |            | * |

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

\*\* Linked with magnesium in silicate form with less than 1 % free silica.

Common Name: Synthetic Olivine  
CAS Number: RN 12 44 003-26-6  
Chemical name of impurities, solvents, and/or additives: None

## 4. First-aid measures

**Inhalation** Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact** Wash off with soap and water. Get medical attention if irritation develops and persists.

**Eye contact** Do not rub your eyes. Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion** Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed**  
Dust may irritate the respiratory tract, skin, and eyes. Direct contact with the eyes may cause irritation.

**Indication of immediate medical attention and special treatment needed**  
Provide general supportive measures and treat symptomatically. Keep the victim under observation.

**General information** If concerned: Get medical advice. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

## 5. Fire-fighting measures

**Suitable extinguishing media** Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media** Not available.

**Specific hazards arising from the chemical** Not available.

**Special protective equipment and precautions for firefighters** Not available.

## 6. Accidental release measures

**Personal precautions, protective equipment, and emergency procedures**  
Keep unnecessary personnel away. Keep people away from, and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA-approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

## Methods and materials for containment and cleaning up

Stop the flow of material if this is without risk. Collect dust using a vacuum cleaner equipped with a HEPA filter.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into a waste container. Avoid the generation of dust during clean-up. Following product recovery, flush the area with water.

Small Spills: Sweep up or vacuum up spillage and collect it in a suitable container for disposal. For waste disposal, see section 13 of the SDS.

## Environmental precautions

Avoid discharge into drains, water courses, or onto the ground.

## 7. Handling and storage

### Precautions for safe handling

Keep the formation of airborne dust to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

### Conditions for safe storage, including any incompatibilities

Store locked up. Store in the original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| <i>Components</i>                               | <i>Type</i> | <i>Value</i>                              | <i>Form</i>                         |
|---|-------------|---|-------------------------------------|
| Iron oxide<br>(CAS 1309-37-1)                   |             | 10mg/m <sup>3</sup>                       | Total dust                          |
| Aluminum Oxide (Non-Fibrous)<br>(CAS 1344-28-1) | TWA         | 15mg/m <sup>3</sup><br>5mg/m <sup>3</sup> | Respirable fraction.<br>Total dust. |
| Trihydroxidoboron<br>(CAS 10043-35-3)           | STEL        | 6 mg/m <sup>3</sup>                       | Inhalable fraction.                 |
| Calcium Oxide<br>(CAS 1305-78-8)                | PEL         | 5 mg/m <sup>3</sup>                       |                                     |

#### US OSHA Table Z-3 (29 CFR 1910.1000)

| <i>Components</i>                               | <i>Type</i> | <i>Value</i>                     | <i>Form</i> |
|---|-------------|----------------------------------|-------------|
| Silicon Dioxide, Amorphous<br>(CAS 112926-00-8) | TWA         | 0.8mg/m <sup>3</sup><br>20 mppcf |             |

### Biological limit values

No biological exposure limits were noted for the ingredient(s).

### Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched

to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation that may generate dust, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

**Individual protection measures, such as personal protective equipment**

- Eye/face protection** Wear safety glasses with side shields (or goggles).
- Skin protection**
  - Hand protection** Wear appropriate chemical-resistant gloves.
  - Other** Use of an impervious apron is recommended.
- Respiratory protection** Use a NIOSH/MSHA-approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
- Thermal hazards** Wear appropriate thermal protective clothing, when necessary



**General Hygiene Considerations**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**9. Physical and chemical properties**

- Appearance**
  - Physical state** Solid.
  - Form** Solid Powder.
  - Color** Varies from light to dark brown.
- Odor** Not available.
- Odor threshold** Not available.
- pH** Not available.
- Melting point/freezing point** Not available.
- Initial boiling point and boiling range** Not available.
- Flash point** Not available.
- Evaporation rate** Not available.
- Flammability (solid, gas)** Not available.
- Upper/lower flammability or explosive limits**

|  |                     |
|--|---------------------|
| <b>Flammability limit - lower (%)</b>          | Not available.      |
| <b>Flammability limit - upper (%)</b>          | Not available.      |
| <b>Explosive limit - lower (%)</b>             | Not available.      |
| <b>Explosive limit - upper (%)</b>             | Not available.      |
| <b>Vapor pressure</b>                          | Not available.      |
| <b>Vapor density</b>                           | Not available.      |
| <b>Relative density</b>                        | Not available.      |
| <b>Solubility(ies)</b>                         |                     |
| <b>Solubility (water)</b>                      | Insoluble in water. |
| <b>Partition coefficient (n-octanol/water)</b> | Not available.      |
| <b>Auto-ignition temperature</b>               | Not available.      |
| <b>Decomposition temperature</b>               | Not available.      |
| <b>Viscosity</b>                               | Not available.      |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage, and transport.  |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.   |
| <b>Possibility of hazardous reactions</b> | No dangerous reaction is known under conditions of normal use.  |
| <b>Conditions to avoid</b>                |   |
| <b>Incompatible materials</b>             | Acids. Chlorine.<br>Incompatibility is based strictly upon potential theoretical reactions between chemicals and may not be specific to industrial application exposure. Contact your sales representative for clarification. |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products are known.  |

## 11. Toxicological information

|   |  |
|---|--|
| <b>Information on likely routes of exposure</b>                                       |  |
| <b>Inhalation</b>   | Dust may irritate the respiratory system. Prolonged inhalation may be harmful. |
| <b>Skin contact</b>   | Dust or powder may irritate the skin.  |
| <b>Eye contact</b>  | Dust may irritate the eyes.  |
| <b>Ingestion</b>  | Expected to be a low ingestion hazard.   |
| <b>Symptoms related to the physical, chemical, and toxicological characteristics:</b> |  |
| Dust may irritate the respiratory tract, skin, and eyes.                              |  |
| <b>Information on toxicological effects</b>   |  |
| <b>Acute toxicity</b>   |  |

| <i>Components</i> | <i>Species</i> | <i>Test Results</i> |
|-------------------|----------------|---------------------|
|-------------------|----------------|---------------------|

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**Trihydroxidoboron  
(CAS 10045-35-3)**

*Acute*

Inhalation  
LC50

Rat

> 0.002 mg/l, 4 hours

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\*Estimates for product may be based on additional component data not shown.

**Skin corrosion/irritation** Prolonged skin contact may cause temporary irritation.  
**Serious eye damage/eye irritation**

Direct contact with the eyes may cause temporary irritation.

**Respiratory or skin sensitization**

**Respiratory sensitization**

Not a respiratory sensitizer.

**Skin sensitization**

This product is not expected to cause skin sensitization.

**Germ cell mutagenicity**

No data is available to indicate product, or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity**

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**Reproductive toxicity**

This product is not reported to cause reproductive effects in humans. Clinical studies on test animals exposed to relatively high doses of the Trihydroxidoboron component of this product indicate adverse reproductive effects.

**Specific target organ toxicity - single exposure**

Not classified.

**Specific target organ toxicity - repeated exposure**

Not classified.

**Aspiration hazard**

Not an aspiration hazard.

**Chronic effects**

Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

## 12. Ecological information

**Ecotoxicity**

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

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*Components*

*Species*

*Test Results*

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**Trihydroxidoboron  
(CAS 10045-35-3)**

*Aquatic*

Fish LC50

Razorback Sucker  
(Xyrauchen Texanus)

> 100 mg/l, 96 hours

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**Persistence and degradability**

No data is available on the degradability of this product.

**Bio-accumulative potential**

No data available.

**Mobility in soil**

No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal instructions** This product, in its present state, when discarded or disposed of, is not hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

**Hazardous waste code** Not applicable.

**Waste from residues / unused products** Not available.

**Contaminated packaging** Not available.

### 14. Transport information

**DOT** Not regulated as dangerous goods.

**IATA** Not regulated as dangerous goods.

**IMDG** Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

### 15. Regulatory information

**US federal regulations** This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. One or more components are not listed on TSCA. All chemical substances in this product are listed on the TSCA chemical substance inventory where required.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)** Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)** Not listed.

**SARA 304 Emergency release notification** Not regulated.

**US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)** Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - No  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous Chemical**

Not listed.

**SARA 313 (TRI reporting)**

| <i>Chemical Name</i>                | <i>CAS number</i> | <i>% by wt.</i> |
|-------------------------------------|-------------------|-----------------|
| <b>Aluminum Oxide (Non-Fibrous)</b> | 1344-28-1         | *               |

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)**

Not regulated.

**US state regulations**

**US California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)**

Not listed.

**US Massachusetts RTK - Substance List**

Aluminum Oxide (Non-Fibrous) (CAS 1344-28-1)

Magnesium Oxide (CAS 1309-48-4)

Calcium Oxide (CAS 1305-78-8)

**US New Jersey Worker and Community Right-to-Know Act**

Aluminum Oxide (Non-Fibrous) (CAS 1344-28-1)

Magnesium Oxide (CAS 1309-48-4)

Trihydroxidoboron (CAS 10043-35-3)

Calcium Oxide (CAS 1305-78-8)

**US Pennsylvania Worker and Community Right-to-Know Law**

Aluminum Oxide (Non-Fibrous) (CAS 1344-28-1)

Magnesium Oxide (CAS 1309-48-4)

Calcium Oxide (CAS 1305-78-8)

**US Rhode Island RTK** Aluminum Oxide (Non-Fibrous) (CAS 1344-28-1)

**US. California Proposition 65**

WARNING: This product contains a chemical known to the State of California to cause cancer.

**US California Proposition 65 - CRT: Listed date/Carcinogenic substance**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**16. Other information, including date of preparation or last revision**

This information is supplied to be informative and to alert the user of the material. The ultimate compliance with federal, state, and/or local regulations concerning the use of this material, or compliance with respect to product liability, rests solely upon the purchaser thereof.

**Prepared by:** FRC Global



**Date:** October 2020

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**End of Safety Data Sheet**