



SAFETY DATA SHEET

DO NOT COPY

Product: Caustic Magnesia and magnesia sinter lines **MC, MCA, MCC, MCI, MCR, DPS, OPS** and **V-OPS**

Code: SDS-23

Review 05

Date: 08/15

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1 - PRODUCT IDENTIFICATION AND COMPANY

Product: Caustic Magnesia and magnesia sinter MC, MCA, MCC, MCI, MCR, DPS, OPS and V-OPS

Company name: Indústrias Brasileiras de Artigos Refratários - IBAR Ltda.

Address: Avenida Ibar, 02 - Poá - 08559-470 - SP

Tel: (11) 4634-6600 / 6611 (contact / emergency) (11) 4636-2710/3000 (fax)

e-mail: ibarvendas@ibar.com.br

Site: www.ibar.com.br

2 - HAZARDS IDENTIFICATION

Most important hazards: Granular material capable of small dust formation. The product exposure may cause slight irritation to the skin, eyes and mucous membranes and may progress to a more critical stage depending on the time and frequency of contact. In the long term can cause dermatitis

Appropriate elements of the labeling:

- **Warning phrase:** "This product may cause damage to health. Refer to safety data sheet the product".

Effects of product:

- **Adverse effects to human health:** The product is slightly harmful to human health because it can be annoying. If inhaled, ingested or in contact with skin, eyes and mucous membranes. The damage can be increased in accordance with the time and / or frequency of exposure.

- **Environmental effects:** Not drastically affect the environment. Overlooked in large quantities, can be harmful and cause damage to fauna and flora, especially the inhabitants of aquatic environment.

- **Physical and chemical hazards:** The product does not have physical and chemical hazards, in accordance with ABNT NBR 14725-2:2009.

3 - COMPOSITION AND INFORMATION ON INGREDIENTS

Identification: Material derived from magnesium oxide, reactive or inert, in powder form or agglomerated.



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Chemicals contributing to Hazard:

Chemicals	Concentration (%)	CAS Number
SiO ₂	< 13,0	7631-86-9
Fe ₂ O ₃	<5,0	1309-37-1
CaO	<3,0	1305-78-8
MgO	>80,0	1309-48-4

4 - FIRST AID

First aid measures:

- **Inhalation:** Remove to cool, fresh air and uncontaminated. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. And forward for medical attention if symptoms occur.
- **Skin Contact:** Wash with soap and water. Remove all contaminated clothing to avoid product contact with skin. Seek medical attention if irritation develops.
- **Eye Contact:** Rinse immediately with plenty of water for at least 15 minutes. Ensure that the lids are open and eyes move in all directions. Refer for medical attention if any irritation.
- **Ingestion:** Do not induce vomiting! Provide plenty of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

5 - FIRE FIGHTING MEASURES

Extinguishing Media: Product non-combustible and non flammable. Flames, when involving this material can be extinguished with carbon dioxide, water spray, foam or dry chemical. Do not use spraywater.

6 - CONTROL MEASURES ACCIDENTAL RELEASE

Personal precautions: The use of PPE is recommended during the cleaning operation.

Environmental precautions: Avoid large quantities of the product remains in the drift environment for long. Collect as much as possible of the material spilled.



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Method for cleaning: Preferably the material collected with suction, or using a shovel clean and put it in a clean plastic container and dry. Finish cleaning by spreading water on the contaminated area to which the waste is discharged to the sewer system.

7- Handling and Storage

Handling: Work in a ventilated using masks or under another type of exhaustion. If there is possibility of unacceptable concentrations of dust in the air and prevents the efficient use of collective protection, need to establish a respiratory protection program, according to Normative Instruction n ° 1 of 11/04/1994 MT. Avoid contact with skin. Wear resistant to abrasion and alkali. Do not use creams in their hands instead of gloves. Wear safety goggles. Should not be used contact lenses. No smoking, eating or drinking at the workplace. Wash hands before meals. Avoid all the work practices that may allow contact with the mouth.

- **Technical measures:** Avoid contact with skin and eyes and do not suck dust.

- **Guidelines for safe handling:** Use gloves scrapes, safety glasses and respirator particles.

Storage:

- **Technical measures:** Keep container closed and avoid contact with water.

- **Storage conditions:** The product should be kept in a dry, covered and placed on litter timber.

- **Materials for packaging:**

Recommendations: Polyethylene bags, paper bags with inner polyethylene film, plastic buckets.

8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Specific control parameters:

- **Occupational exposure limit:**

Magnesium oxide:

TWA = 10mg/m³ for 8h in the form of smoke (based on ACGIH³¹ TLV -United States, 2003).

TWA = 15mg/m³ for 8h in form of particle (according to OSHA® PEL -United States, 1993).



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Calcium oxide:

TWA = $2\text{mg}/\text{m}^3$ for 8h in any format (according to ACGIH³¹ TLV - United States, 2003).

TWA = $5\text{mg}/\text{m}^3$ for 8h in any format (according to OSHA® PEL - United States, 1993).

And engineering control measures: Removal of suspended particles in the air with exhaust fans and ventilation

Individual protective equipment appropriate:

- **Skin and body:** Pants and denim shirt, apron and glove bag or shaving, hoods, footwear and helmet.
- **Eye protection / face:** Safety glasses.
- **Respiratory Protection:** Respirator with filter type P-i and P₂.

9 - Physical and Chemical Properties

Appearance:

- **Physical state:** Solid.
- **Form:** Granulated material or powder.
- **Color:** Brown.
- **Odor:** Odorless.
- **pH:** Not available.
- **Melting point:** > 1800 °C
- **Evaporation rate:** Non-volatile.
- **Flammability:** Not flammable.
- **Explosive limit:** Not explosive.
- **Density:** >0.70 g/cm³
- **Solubility:** Insoluble in water. Reacts slowly with inorganic acids and oxidizers.
- **Auto-ignition Temperature:** Not applicable.
- **Decomposition temperature:** Not applicable.

10 - Stability and Reactivity

Chemical stability: The product is stable.

Reactivity: Partially reacts with inorganic acids and oxidizing agents. Formation of Mg(OH)₂ in presence of water.

Possibility of hazardous reactions: Possible.

Conditions to avoid: Avoid high humidity environment or contact with acids and oxidizing and keeping qualities.

Hazardous Decomposition Products: Will not occur.



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11 - TOXICOLOGICAL INFORMATION

Information according to the different routes of exposure:

-Acute Toxicity:

By inhalation: Exposure to dust may cause respiratory irritation. The effect depends on the degree of exposure. Repeated or prolonged exposure can cause chest tightness, coughing and lung damage.

For skin contact: The slurry of magnesium oxide has a high pH and may irritate appeal in case of prolonged contact.

For eye contact: Irritation of the eyes.

If swallowed It can cause burning of the lining of the mouth, esophagus and stomach.

- **Chronic toxicity:** Repeated or prolonged exposure is not known as creating or aggravating the state of the sick worker.

Magnesium oxide has no risk of carcinogenicity to humans or animals according to the classification of ACGIH (Class A4).

- **Main symptoms:** Local redness, cough and respiratory failure.

There were no interactions between substances with the action of addition, potentiation or synergy.

12 - ECOLOGICAL INFORMATION

Environmental effects, behaviors and product impacts: The product is not toxic to the environment. However it may be harmful in inadequate amounts for a prolonged time, the possibility of imbalance of pH, causing damage to fauna and flora.

- Ecotoxicity: Not toxic damage.

13 - DISPOSAL CONSIDERATIONS

Recommended methods for treatment and disposal apply to:

- **Product:** It should be kept indoors and dry and laid out on wooden stretcher.

- **Product residues:** The waste must be destined for landfills class II and class II B observing the regulatory standards for Solid Waste (ABNT NBR 10004:2004).

- **Used packaging:** The components of the packaging can be recycled, incinerated or sent to landfill in accordance with current legislation. Do not reuse containers without proper precautions.



MATERIAL SAFETY DATA SHEET - MSDS

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14 - TRANSPORT INFORMATION

National and international regulations: Product uncontrolled.

15 - REGULATIONS

Regulations specific to the chemical:

NBR 10237:2001 - Refractory Materials - Classification;
NBR 12856:1995 - Supply of refractory materials;
NBR 10004:2004 - Solid Waste - Classification;
NBR 14725-2:2009 - Chemicals - Hazard Classification System.

As determined by the NR's Ministry of Labor:

Security:

After contact with skin, wash thoroughly with soap and water.

In case of ingestion route to medical care and present the product packaging, labeling and other existing documents.

Inhalation seek medical attention and show the product packaging, labels and other documents existing.

Contact with eyes, rinse immediately with plenty of water and seek medical advice.

16 - OTHER INFORMATION

References:

The information contained herein is based on experiences with the product and technical publications. The physicochemical characteristics of this product are subject to change depending on the application and conditions of use. Thus, the information contained herein does not imply any liability or warranty implied or explicit.

The preparation of this Information Sheet on Chemical Safety was based on NBR-14725-4: 2009.

Legend:

® PEL (Permissible Exposure Level) Permissible Exposure Limit.

® OSHA (Occupational Safety and Health Administration) Department of Occupational Safety and Health.

^aACGIH (American Conference of Governmental Industrial Hygienists)

TLV (Threshold Limit Value) Value limit.

TWA (Time-Weighted Average): Time Weighted Average.