



# Material Safety Data Sheet

Material Name: MONOFRAX® M

ID: 359

**\*\*\* Section 1 - Chemical Product and Company Identification \*\*\***

**Chemical Name:** ALUMINA FUSED CAST REFRACTORY

**Manufacturer Information**

RHI Monofrax Ltd  
1870 New York Ave.  
Falconer, NY 14733

Phone: (716) 483-7200

**General Comments**

CHEMTREC Assist: 1-800-424-9300 (Continental U.S.)  
1-703-527-3887 (Outside Continental U.S. - Call Collect)

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

**\*\*\* Section 2 - Composition / Information on Ingredients \*\*\***

CAS #	Component	Percent
1344-28-1	Aluminum oxide	40-50
1302-42-7	Sodium aluminate	40-50
65997-17-3	Glass, oxide	1-5

**Component Related Regulatory Information**

This product may be regulated, have exposure limits or other information identified as the following: Aluminum, soluble salts, Nuisance particulates.

**\*\*\* Section 3 - Hazards Identification \*\*\***

**Emergency Overview**

CAUTION! Product is a solid, very dense white block. Dust from this product may be irritating to the eyes, respiratory system and skin. During normal conditions of use, this product is not expected to create any unusual health or emergency hazards. If the product is subjected to cutting, sanding, grinding or machining, dusts may be generated. **DO NOT CUT, SAND, OR GRIND THIS PRODUCT** in a manner that will lead to the generation of dusts.

**Potential Health Effects: Eyes**

Dust may cause irritation, redness, swelling, pain, and burns. Abrasive action may cause damage to the outer surface of the eye.

**Potential Health Effects: Skin**

May cause cuts and abrasions. Dust from cutting or grinding may cause severe irritation with itching. Repeated or prolonged contact may cause a rash and burning.

**Potential Health Effects: Ingestion**

Ingestion of this product is unlikely because material is supplied in a block form. Swallowing dusts may cause irritation, pain, burns to the mucous membranes, discoloration of the tissue, swelling, and difficulty speaking and swallowing.

**Potential Health Effects: Inhalation**

In normal industrial use, inhalation is not considered a probable route of exposure. Dust from cutting or grinding may cause respiratory tract irritation, coughing, burning, pain, and possible burns of the mucous membranes. Repeated or prolonged exposure to high dust concentrations may cause swelling and ulcers in the mouth, and bronchial and gastrointestinal disturbances.

**Conditions Aggravated by Exposure**

Pre-existing skin and respiratory disorders.

**HMIS Ratings: Health: 1\* Fire: 0 Physical Hazard: 0**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

# Material Safety Data Sheet

Material Name: MONOFRAX® M

ID: 359

## \*\*\* Section 4 - First Aid Measures \*\*\*

### First Aid: Eyes

Flush immediately with large amounts of water for at least 15-20 minutes while holding eyelids open. Do not rub eyes. Get immediate medical attention.

### First Aid: Skin

Flush with large amounts of water while removing contaminated clothing. If irritation persists, get medical attention.

### First Aid: Ingestion

Get immediate medical attention or advice -- Do not induce vomiting. Never give anything by mouth to a person who is unconscious or is having convulsions.

### First Aid: Inhalation

Immediately remove the affected person to fresh air. If the affected person is not breathing, apply artificial respiration. Seek medical attention.

## \*\*\* Section 5 - Fire Fighting Measures \*\*\*

**Flash Point:** Not applicable

**Method Used:** Not applicable

**Upper Flammable Limit (UFL):** Not applicable

**Lower Flammable Limit (LFL):** Not applicable

**Auto Ignition:** Not applicable

**Flammability Classification:** Non-flammable

**Rate of Burning:** Not applicable

### General Fire Hazards

Not a fire hazard.

### Hazardous Combustion Products

Thermal decomposition may release oxides of aluminum and irritating smoke and fumes.

### Extinguishing Media

Use methods for the surrounding fire.

### Fire Fighting Equipment/Instructions

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**NFPA Ratings: Health: 1 Fire: 0 Instability: 0**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

## \*\*\* Section 6 - Accidental Release Measures \*\*\*

### Containment Procedures

Isolate the material and wet down lightly with water. Avoid generating dusty conditions. The use of a dust suppressant agent or water is recommended to control the creation of airborne dusts.

### Clean-Up Procedures

Collect spill using a vacuum cleaner with a HEPA filter. Avoid dry sweeping. When cleaning spill, wear appropriate personal protective equipment including safety goggles and chemical-resistant gloves. Releases into the environment may be reportable in certain states or localities.

### Evacuation Procedures

None necessary.

### Special Procedures

Follow all Local, State, Federal and Provincial regulations for disposal.

## \*\*\* Section 7 - Handling and Storage \*\*\*

### Handling Procedures

Avoid contact with skin and eyes. Wash thoroughly after handling. Avoid breathing dusts from this material.

If this product has been in service at temperatures greater than 982°C (1800°F) it may contain cristobalite, a form of crystalline silica. IARC has classified crystalline silica, which includes cristobalite, as a group I carcinogen (known human carcinogen).

Removal and cleanup of after-service-product may result in exposure to mixed dusts containing cristobalite.

# Material Safety Data Sheet

Material Name: MONOFRAX® M

ID: 359

If this product has been in service, particularly in the glass industry, it may be contaminated with toxic substances such as heavy metals. During removal, exposed product should be frequently misted with water to minimize airborne dusts. A surfactant may be added to the water to improve the wetting process. Use only enough water to wet the product. Do not allow water to accumulate on floors.

## Storage Procedures

Keep this material in a dry place.

## \*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\*

### Exposure Guidelines

#### A: General Product Information

No exposure limits have been developed by the Occupational Safety and Health Administration (OSHA) or the American Conference of Governmental Hygienists (ACGIH) for this product. Exposure limits exist for the following ingredients.

#### B: Component Exposure Limits

##### Sodium aluminate (1302-42-7)

ACGIH: 2 mg/m<sup>3</sup> TWA (as Al) (related to Aluminum, soluble salts)

OSHA: 2 mg/m<sup>3</sup> TWA (as Al. Listed under 'Aluminum') (related to Aluminum, soluble salts)

##### Aluminum oxide (1344-28-1)

ACGIH: 10 mg/m<sup>3</sup> TWA (particulate matter containing no asbestos and < 1% crystalline silica)

OSHA: 10 mg/m<sup>3</sup> TWA (total dust); 5 mg/m<sup>3</sup> TWA (respirable fraction)

##### Glass, oxide (65997-17-3)

ACGIH: 10 mg/m<sup>3</sup> TWA (inhalable particles); 3 mg/m<sup>3</sup> TWA (respirable particles) (related to Particulates (insoluble or poorly soluble) not otherwise specified (PNOS))

OSHA: 15 mg/m<sup>3</sup> TWA (total dust); 5 mg/m<sup>3</sup> TWA (respirable fraction) (related to Particulates not otherwise regulated)

#### C: Exposure Limits for Chemicals Generated in Use

##### Silica, cristobalite (14464-46-1)

ACGIH: 0.05 mg/m<sup>3</sup> TWA (respirable fraction)

OSHA: 0.05 mg/m<sup>3</sup> TWA (respirable dust)

### Engineering Controls

Ventilation should effectively remove and prevent buildup of any dust generated from the handling of this product.

### PERSONAL PROTECTIVE EQUIPMENT

#### Personal Protective Equipment: Eyes/Face

Wear safety glasses or chemical goggles. The use of contact lenses is not recommended if dusts can be generated when handling this product.

#### Personal Protective Equipment: Skin

Use impervious gloves.

#### Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively prevent buildup of dust, appropriate NIOSH/MSHA respiratory protection must be provided.

#### Personal Protective Equipment: General

Eye wash fountain is recommended.

## \*\*\* Section 9 - Physical & Chemical Properties \*\*\*

**Appearance:** White block  
**Physical State:** Solid  
**Vapor Pressure:** Not applicable  
**Boiling Point:** Not available  
**Solubility (H<sub>2</sub>O):** Slight  
**Softening Point:** Not available

**Odor:** Odorless  
**pH:** Not available  
**Vapor Density:** Not applicable  
**Melting Point:** 1950°C (3550°F)  
**Specific Gravity:** 3.41

# Material Safety Data Sheet

Material Name: MONOFRAX® M

ID: 359

## \*\*\* Section 10 - Chemical Stability & Reactivity Information \*\*\*

### Chemical Stability

Stable.

### Conditions to Avoid

Avoid generation of dusts.

### Incompatibility

None identified.

### Hazardous Decomposition

Thermal decomposition may release oxides of aluminum and irritating smoke and fumes.

### Hazardous Polymerization

Will not occur.

## \*\*\* Section 11 - Toxicological Information \*\*\*

### Acute and Chronic Toxicity

#### A: General Product Information

Aluminum oxide is considered a nuisance dust and as such it is expected to cause eye, skin and respiratory irritation due to mechanical action. Chronic occupational exposures may produce small pulmonary radiographic opacities, which are usually not fibrogenic. Some epidemiological studies have shown excess nonmalignant pulmonary disease and fibrosis. Chronic exposure can cause fibrotic changes in the lungs.

#### B: Component Analysis - LD50/LC50

No LD50/LC50's are available for this product's components.

### Carcinogenicity

#### A: General Product Information

No carcinogenicity data available for this product.

#### B: Component Carcinogenicity

##### Aluminum oxide (1344-28-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

#### C: Component Carcinogenicity for Chemicals Generated in Use

##### Silica, cristobalite (14464-46-1)

IARC Monograph 68, 1997 (inhaled in the form of quartz or cristobalite from occupational sources)  
Group 1 (carcinogen to humans)

## \*\*\* Section 12 - Ecological Information \*\*\*

### Ecotoxicity

No information available.

### Environmental Fate

No information available.

## \*\*\* Section 13 - Disposal Considerations \*\*\*

### US EPA Waste Number & Descriptions

#### A: General Product Information

This product, when discarded in its purchased form, is not considered a characteristic hazardous waste according to Federal regulations (40 CFR 261). You must test your waste using methods described in 40 CFR Part 261 to determine if it meets these or other applicable definitions of hazardous wastes.

#### B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

### Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

## \*\*\* Section 14 - Transportation Information \*\*\*

### International Transportation Regulations

This product is not regulated as a hazardous material by the United States (DOT) or Canadian (TDG) transportation regulations.

# Material Safety Data Sheet

Material Name: MONOFRAX® M

ID: 359

## \*\*\* Section 15 - Regulatory Information \*\*\*

### US Federal Regulations

#### A: General Product Information

No information available.

#### B: Component Analysis

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

### State Regulations

#### A: General Product Information

Other state regulations may apply. Check individual state requirements.

#### B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Sodium aluminate (related to Aluminum, soluble salts)	1302-42-7	Yes 1	No	Yes 1	No	Yes 1	No
Aluminum oxide	1344-28-1	No	Yes	Yes	Yes	Yes	Yes
Glass, oxide (related to Nuisance particulates)	65997-17-3	No	No	Yes	No	No	Yes 1

### C: Component Analysis

Component	CAS	CA	FL	MA	MN	NJ	PA
Silica, cristobalite	14464-46-1	No	No	Yes	Yes	Yes	No

### Other Regulations

#### A: General Product Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all information required by the CPR.

#### B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Sodium aluminate	1302-42-7	Yes	Yes	Yes
Aluminum oxide	1344-28-1	Yes	Yes	Yes
Glass, oxide	65997-17-3	Yes	Yes	Yes

### C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Sodium aluminate	1302-42-7	1 % (English Item 53, French Item 198) (related to Aluminum, water-soluble salts, n.o.s.)
Aluminum oxide	1344-28-1	1 % (English Item 44, French Item 195)

### D: Component Analysis: WHMIS IDL for Chemicals Generated in Use

Component	CAS #		Data
Silica, cristobalite	14464-46-1	WHMIS	1 % (English Item 1405, French Item 1490)

WHMIS Classification: D2B

# Material Safety Data Sheet

Material Name: MONOFRAX® M

ID: 359

*** Section 16 - Other Information ***
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## Other Information

The information presented herein is based on data considered to be accurate as of the date of preparation of the Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice invention without a license.

In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

## Key/Legend

NA = Not available or Not Applicable. ACGIH = American Conference of Governmental Industrial Hygienists. TLV = Threshold Limit Value. NIOSH = National Institute of Occupational Safety and Health. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NFPA = National Fire Protection Association. HMIS = Hazardous Material Information System. CFR = Code of Federal Regulations. CERCLA = Comprehensive Environmental Response and Compensation Liability Act. SARA = Superfund Amendments and Reauthorization Act. IARC = International Agency for Research on Cancer. WHMIS = Workplace Hazardous Material Information System. RCRA = Resource Conservation and Recovery Act.

This is the end of MSDS # 359