

Printing date 08/09/2001

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Reviewed on 04/30/2001

## 1 Identification of substance

· **Product details**

· **Trade name:** GREFPATCH 85

· **Manufacturer/Supplier:**  
RHI Refractories America  
600 Grant Street  
Pittsburgh, PA 15219

Phone: (412) 562-6200

· **Information department:** MSDS Technical Information: (412) 562-6437

· **Emergency information:** CHEMTREC 24 HOUR EMERGENCY PHONE NUMBER: 1-800-424-9300.

## 2 Composition/Data on components

· **Chemical characterization**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Components:**

1344-28-1	non-fibrous alumina	60-100%
14808-60-7	crystalline silica (quartz)	2.5-5%
7631-86-9	silicon dioxide, chemically prepared	2.5-5%
1302-78-9	bentonite	2.5-5%
13463-67-7	titanium dioxide	1-2.5%
1309-37-1	iron oxide	1-2.5%

## 3 Hazards identification

· **Hazard description:**

Toxic

· **Medical conditions aggravated by exposure to the product:** Asthma, chronic lung disease, and skin irritation.

· **Carcinogenicity Information:**

Crystalline silica is listed by IARC as a Group 1 Carcinogen "sufficient evidence of carcinogenicity in humans", and is listed by NTP as K, "Known To Be A Human Carcinogen".

· **Information pertaining to particular dangers for man and environment:**

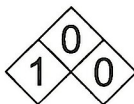
May cause cancer by inhalation.

Irritating to eyes, respiratory system and skin.

Danger of serious damage to health by prolonged exposure.

PRODUCT CONTAINS CRYSTALLINE SILICA, "a chemical known to the State of California to cause cancer." Prolonged or repeated inhalation of dust from products containing crystalline silica can cause silicosis or cancer.

· **NFPA ratings (scale 0-4)**



Health = 1

Fire = 0

Reactivity = 0

(Contd. on page 2)

USA

**Trade name: GREFPATCH 85**

**· HMIS Classification**

(Contd. from page 1)

HEALTH	*1	Health: *1
FIRE	0	Flammability: 0
REACTIVITY	0	Reactivity: 0

**4 First aid measures**

- **After inhalation:** Move to fresh air; consult doctor if needed.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Flush eyes with water for 15 minutes. If irritation persists, consult a doctor.
- **After swallowing:**  
This product is intended for industrial applications; in the unlikely event that this product is swallowed, consult a physician if any adverse medical conditions occur.

**5 Fire fighting measures**

- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Person-related safety precautions:** Not required.
- **Measures for environmental protection:** No special measures required.
- **Measures for cleaning/collecting:**  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.

**7 Handling and storage**

- **Handling:**
- **Information for safe handling:**  
Ensure good ventilation/exhaust at the workplace.  
Prevent formation of dust.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Storage:**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store product inside, out of extreme weather conditions.
- **Storage class:**
- **Class according to regulation on flammable liquids:** Not applicable

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(Contd. from page 2)

## 8 Exposure controls and personal protection

### · Components with limit values that require monitoring at the workplace:

#### 1344-28-1 non-fibrous alumina

ACGIH TLV	10 mg/m <sup>3</sup>
OSHA PEL	15*; 5** mg/m <sup>3</sup>
	*Total dust **Respirable fraction

#### 14808-60-7 crystalline silica (quartz)

ACGIH TLV	0.05 R mg/m <sup>3</sup>
NIOSH REL	0.05* mg/m <sup>3</sup>
	*Respirable dust
OSHA PEL	Short-term value: 10** mg/m <sup>3</sup>
	Long-term value: 30* mg/m <sup>3</sup>
	as SiO <sub>2</sub> ; *Total dust **Respirable dust

#### 13463-67-7 titanium dioxide

ACGIH TLV	10 mg/m <sup>3</sup>
NIOSH REL	Lowest feasible conc.; (LOQ 0.2 mg/m <sup>3</sup> )
OSHA PEL	15* mg/m <sup>3</sup>
	*Total dust

#### 1309-37-1 iron oxide

ACGIH TLV	5 mg/m <sup>3</sup>
	as Fe (Iron oxide dust & fume (Fe <sub>2</sub> O <sub>3</sub> ))
NIOSH REL	5 mg/m <sup>3</sup>
	as Fe; Iron dust & fume (Fe <sub>2</sub> O <sub>3</sub> )
OSHA PEL	10 mg/m <sup>3</sup>
	as Fe; Iron oxide dust & fume (Fe <sub>2</sub> O <sub>3</sub> )

### · Personal protective equipment:

#### · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.  
Avoid contact with the eyes and skin.

#### · Breathing equipment:



NIOSH approved respirators should be used if dust is present. A respiratory protection program should be implemented if exposures exceed OSHA PELs.

#### · Protection of hands:



Protective gloves recommended

#### · Eye protection: Safety glasses with side shields recommended

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### 9 Physical and chemical properties

- **Form:** Solid
- **Color:** According to product specification
- **Odor:** No specific odor.
- **Change in condition**  
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: Undetermined.
- **Flash point:** Not applicable.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Density:** Not determined.
- **Solubility in / Miscibility with Water:** Insoluble.

### 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known.
- **Dangerous products of decomposition:**  
 Refractories containing crystalline silica may, after service, contain more or less crystalline silica. Care must be taken to avoid and/or control dust from demolition. If in doubt of the proper protection, seek advice from a safety professional.

### 11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

**7631-86-9 silicon dioxide, chemically prepared**

Oral	LD50	10000 mg/kg (rat)
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**13463-67-7 titanium dioxide**

Oral	LD50	>20000 mg/kg (rat)
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Dermal	LD50	>10000 mg/kg (rbt)
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Inhalative	LC50/4 h	>6.82 mg/l (rat)
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**1309-37-1 iron oxide**

Oral	LD50	>5000 mg/kg (rat)
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· **Primary acute effects:**

· **Skin contact:** Irritant to skin and mucous membranes.

· **Eye contact:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant.

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Carcinogenic if inhaled.

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## 12 Ecological information

- **General notes:** At present there are no ecotoxicological assessments.

## 13 Disposal considerations

- **Recommendation for Disposal of Product:**  
As sold, this product is not RCRA hazardous. Final used condition must be evaluated prior to disposal. Dispose of waste product in accordance with Federal, State and Local regulations.  
Dust created during demolition of used product may contain crystalline silica.
- **Recommendation for Disposal of Uncleaned Packaging:** Reuse, recycle or treat as industrial waste.

## 14 Transport information

- **Transport/Additional information:** Not dangerous according to available information.

## 15 Regulations

### · SARA 313 TOXIC CHEMICALS

No material listed in the components in Section 2 of this MSDS is on the SARA 313 list.

### · SARA 302 EXTREMELY HAZARDOUS SUBSTANCES

No material listed in the components in Section 2 of this MSDS is on the SARA 302 list.

### · TSCA (Toxic Substances Control Act)

This substance or all the ingredients of this product are on the Chemical Substances Inventory of the Toxic Substances Control Act (TSCA Inventory). The presence on this list does not require any legal reporting.

### · WHMIS Classification

Class D - Division 2 - Sub Division A

Untested mixture containing a very toxic material

Class D - Division 2 - Sub Division B

Untested mixture containing a toxic material

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

### · Classification according to EU-guidelines

### · Hazard symbols:

Toxic

### · Hazard-determining components of labeling:

crystalline silica (quartz)

### · Risk phrases:

May cause cancer by inhalation.

Irritating to eyes, respiratory system and skin.

Danger of serious damage to health by prolonged exposure.

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· **Safety phrases:**

*When using do not eat or drink.*

*Do not breathe dust.*

*Avoid contact with eyes.*

*In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.*

*After contact with skin, wash immediately with plenty of soap and water*

*Wear suitable protective clothing and gloves.*

*In case of accident or if you feel unwell, seek medical advice immediately.*

· **Special labeling of certain preparations:**

*PRODUCT CONTAINS CRYSTALLINE SILICA, "a chemical known to the State of California to cause cancer."*

*Prolonged or repeated inhalation of dust from products containing crystalline silica can cause silicosis or cancer.*

· **National regulations:**

· **The following ingredients are known in the state of California to be a cancer risk (Proposition 65):**

14808-60-7	crystalline silica (quartz)
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**16 Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Contact:** Patricia A. Kott 412-469-6123

· **Creation date:** 08/14/2000

# GREFPATCH<sup>®</sup> 85 and GREFPATCH<sup>®</sup> 85 WET

## High Alumina Patching Plaster

GREFPATCH<sup>®</sup> 85 is an 85% alumina, phosphate bonded patching plaster formulated for application by trowel or by hand for use in both metal and non-metal contact areas which have spalled or eroded. GREFPATCH<sup>®</sup> 85 will not shrink or crack on heat up, will resist metal and slag erosion, and can be used on hot surfaces.

GREFPATCH<sup>®</sup> 85 WET is a wetter, higher workability version of regular GREFPATCH<sup>®</sup> 85, and being wetter, is stickier and easier to apply by hand or trowel. A slight reduction in strength may be apparent because of the additional water, however, many users prefer the wet over the regular.

### CHEMICAL ANALYSIS - Calclned Basis

Silica - CaO .....	10.2%
Alumina - Al <sub>2</sub> O <sub>3</sub> .....	83.7%
Iron Oxide - Fe <sub>2</sub> O <sub>3</sub> .....	1.0%
Titania - TiO <sub>2</sub> .....	1.9%
Alkalies - Na <sub>2</sub> O + K <sub>2</sub> O .....	0.4%
Phosphorous Pentoxide - P <sub>2</sub> O <sub>5</sub> .....	2.8%

A. P. Green is a supplier of high duty and super duty brick, insulating firebrick, high alumina brick, basic brick, silica brick, mortars, plastics, castables, and precast shapes as well as mineral wool block insulation and a complete ceramic fiber line. Stocks of these products are maintained in more than 90 locations throughout North America. And, having been in the refractories business for more than 80 years, A. P. Green can also provide the expertise and thorough technical assistance that you might require.

# GREFPATCH<sup>®</sup> 85 and GREFPATCH<sup>®</sup> 85 WET

Technical Data

<b>FUSION POINT, PCE</b> .....		<b>Pressed</b>	
<b>QUANTITY REQUIRED</b> .....	175 lb/ft <sup>3</sup>	38	2.80 g/cm <sup>3</sup>
<b>ADHESION TEST</b>			
1/8" Thick, Heated to 2900°F (1595°C) and Cooled		Will Not Peel	
<b>BULK DENSITY</b>	<b>lb/ft<sup>3</sup></b>		<b>g/cm<sup>3</sup></b>
Heated at 450°F (230°C) for 24 hours and cooled	167		2.68
Heated at 2500°F (1370°C) for 5 Hours and Cooled	161		2.60
Heated at 3000°F (1650°C) for 5 Hours and Cooled	170		2.72
<b>MODULUS OF RUPTURE - ASTM C133</b>	<b>lb/in<sup>2</sup></b>		<b>MPa</b>
Heated at 450°F (230°C) for 24 Hours and Cooled	1600		11.0
Heated at 2500°F (1370°C) for 5 Hours and Cooled	1800		12.4
Heated at 3000°F (1650°C) for 5 Hours and Cooled	1000		6.9
<b>HOT MODULUS OF RUPTURE - ASTM C583</b>			
Heated at 2700°F (1480°C) .....	445		3.1
<b>COLD CRUSHING STRENGTH - ASTM C133</b>			
Heated at 450°F (230°C) for 24 Hours and Cooled	3600		24.8
Heated at 2500°F (1370°C) for 5 Hous and Cooled	15000		103.4
Heated at 3000°F (1650°C) for 5 Hours and Cooled	8100		55.8
<b>PERMANENT LINEAR CHANGE - ASTM C179</b>			
Expansion or Shrinkage - Percent Original Length			
Heated at 450°F (230°C) for 24 Hours and Cooled		0.5% shr.	
Heated at 2500°F (1370°C) for 5 Hours and Cooled		1.1% exp.	
Heated at 3000°F (1650°C) for 5 Hours and Cooled		0.2% exp.	

Manufacturing Locations: Smithville, ON; Sproul, PA

The test data shown are based on average results on production samples and are subject to normal variation on individual tests. Accordingly, test data cannot be taken as establishing maximum or minimum specifications.

May 31, 1996



# MATERIAL SAFETY DATA SHEET

## 1. PRODUCT NAME AND COMPANY IDENTIFICATION

**MANUFACTURER:**  
National Refractories & Minerals Corporation  
1852 Rutan Drive  
Livermore, California 94550-7635

**PRODUCT(S):** Corpatch 80, Corpatch 90

**DATE:** July 31, 1997

**MSDS No.:** 0011

**TELEPHONE No.:**

**EMERGENCY:** (510) 449-5010

**REVISION No.:** 5

**INFORMATION:** (510) 294-7544

**LABEL No.:** 3072

**PREPARED BY:**

Corporate Environmental Services

## 2. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>Weight %</u>	<u>CAS Number</u>	<u>'96 ACGIH TLV</u>	<u>OSHA PEL</u>
Silica, crystalline quartz	<5	14808-60-7	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
Alumina (non-fibrous)	<35	1344-28-1	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Alumino silicates	>35	66402-68-4	NE	NE
Mono aluminum phosphate	<25	7784-30-7	2.0 mg/m <sup>3</sup> (Al)	NE

At very high temperatures such as during refractory use, other/additional forms of silica (such as quartz, cristobalite, tridymite, amorphous) may be formed, triggering other applicable exposure guidelines. In addition, refractory may become contaminated with other hazardous substances (e.g., metals, alkaline materials). The specific processing and use of this refractory should be fully evaluated to assess the entire scope of health hazards.

**Note:** 1) TLV and PEL values given above are 8-hour, time-weighted averages, unless otherwise specified.

2) NE = None Established, and means that the substance is not assigned a specific TLV or PEL. Substance regulated by OSHA as particulates not otherwise regulated (PNOR, PELs - 15 mg/m<sup>3</sup> total dust, 5 mg/m<sup>3</sup> respiratory fraction) and by ACGIH as particulates not otherwise classified (PNOC, TLV - 10 mg/m<sup>3</sup> total dust, 3 mg/m<sup>3</sup> respirable fraction) and is considered a nuisance dust.

## 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Granular mix, practically odorless. As-manufactured product does not pose significant fire hazard. Refractory particulates formed during processing, installation, maintenance procedures and/or tear-out may be irritating to the skin, eyes and respiratory tract, and may cause pulmonary system effects. Potential for cancer and silicosis exists for long-term exposures to product particulates. Product is noncombustible and stable.

**PRIMARY ROUTES OF ENTRY:** Inhalation: Yes. Skin: Yes. Ingestion: No. Other: No.

**EYE CONTACT:** Particulates may cause slight to moderate irritation. Abrasive action of dust can damage eyes.

**SKIN CONTACT:** Particulates may cause slight irritation.

**INHALATION:** Inhalation of airborne particulates may cause slight to moderate irritation of mucous membranes.

**INGESTION:** Ingestion is unlikely. If ingested in sufficient quantities, may cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain and diarrhea.

**CHRONIC :** The prolonged inhalation of dusts containing crystalline silica may result in the development of disabling pulmonary fibrosis known as silicosis. Silicosis is a chronic disease characterized by generalized fibrotic changes and the development of nodules in both lungs, and clinically by shortness of breath, decreased chest expansion, lessened capacity for work, absence of fever, increased susceptibility to tuberculosis, and characteristic x-ray findings.

**CARCINOGENICITY :** IARC has listed crystalline silica from occupational sources as a Group 1 carcinogen. A Group 1 carcinogen is one in which there is sufficient evidence for carcinogenicity in humans. NTP has listed crystalline silica as reasonably anticipated to be a carcinogen.

**SIGNS AND SYMPTOMS OF OVEREXPOSURE:** Irritation, shortness of breath, decreased chest expansion, dry cough, fatigue, dyspnea, cyanosis, loss of appetite, chest pain, total incapacity to work.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE (to particulates):** Preexisting diseases or other conditions of the lungs, skin, eyes, and other mucous membranes. Exposure to product dust in conjunction with exposure to other potential carcinogens (such as cigarette smoking) may have a synergistic effect.

#### 4. FIRST AID MEASURES

**INHALATION :** Immediately remove victim from the adverse environment to fresh air and seek medical attention.

**EYE CONTACT :** Immediately flush with large amounts of running water as needed. If symptoms persist, seek medical attention.

**SKIN CONTACT :** If dust gets on skin, wash contaminated area with soap and water. Remove and wash contaminated clothing. If rash, irritation, or other symptoms persist, seek medical attention.

**INGESTION :** Ingestion is an unlikely route of exposure. If particles are ingested and victim is conscious, give 1-2 glasses of water or milk. Never give anything by mouth to an unconscious person. Leave decision to induce vomiting for a doctor, since particles may be aspirated into the lungs. Seek immediate medical attention.

#### 5. FIRE FIGHTING MEASURES

**FLASH POINT :** Not applicable. **FLASH POINT METHOD USED :** Not applicable.

**FLAMMABLE LIMITS :** Not applicable. **LEL :** Not applicable. **UEL :** Not applicable.

**AUTOIGNITION :** Not applicable.

**GENERAL HAZARD :** This refractory product is noncombustible and does not pose fire or explosion hazards, and will not ignite or contribute to the intensity of a fire.

**EXTINGUISHING MEDIA :** As appropriate for surrounding fire.

**FIRE FIGHTING INSTRUCTIONS :** As appropriate for surrounding fire.

**FIRE FIGHTING EQUIPMENT :** As appropriate for surrounding fire. Generally, fire fighters should wear full turn-out (bunker) gear and full respiratory protection (self-contained breathing apparatus-SCBA). Wear SCBA with full facepiece, operated in the positive pressure mode when fighting fires.

**HAZARDOUS COMBUSTION PRODUCTS :** Not applicable.

**UNUSUAL FIRE AND EXPLOSION HAZARDS :** Not applicable.

#### 6. ACCIDENTAL RELEASE MEASURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:** If there is a spill of product, installation, maintenance, or tear-out material, the following precautions should be taken: Clean up using methods which avoid dust generation. If a vacuum is used, exhaust air should be filtered by a high-efficiency particulate air (HEPA) filter. Compressed air should not be used to clean up spills. During cleanup, skin and eye contact and inhalation of dust should be avoided. Provide local exhaust or dilution ventilation as required. When necessary, wear appropriate personal protective

equipment (see Section 8) during clean-up operations. Collect material in a compatible and appropriately labeled container. For small dry spills, place material into clean dry container with a clean shovel, and cover. Comply with federal, state, and local regulations regarding reporting of spills. Dispose of material from processing, installation, maintenance, or tear-out operations in accordance with applicable federal, state, and local regulations (see Section 13).

## 7. HANDLING AND STORAGE

**STORAGE TEMPERATURE AND PRESSURE:** Not applicable.

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE :** Store in a dry area. Minimize dust generation and avoid inhalation and contact with dusts during processing, installation, maintenance, and/or tear-out. After handling of dusts from processing, installation, maintenance, and/or tear-out, wash exposed skin areas thoroughly. Wash clothing contaminated with dusts.

## 8. EXPOSURE CONTROL AND PERSONAL PROTECTION

**NOTE :** Dusts generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, alkali materials). Evaluation of specific processes should be performed by a qualified health and safety professional to determine appropriate controls and personal protective equipment to minimize exposure and contact.

**RESPIRATORY PROTECTION:** Use an appropriate NIOSH/MSHA-approved respirator if airborne contaminant concentrations exceed applicable OSHA PEL or ACGIH TLV limits (see Section 2 for PELs and TLVs) or other industry standards or guidelines on exposure. If respiratory protection is required, all appropriate requirements as set forth in 29 CFR 1910.134 must be met. A qualified health and safety professional should be consulted for respirator selection.

**PROTECTIVE GLOVES:** Use as needed to prevent skin contact.

**EYE PROTECTION:** Use safety glasses and/or dust-proof safety goggles to prevent contact with dust.

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:** Clothing which minimizes skin exposure.

**ENGINEERING CONTROLS :** Use local and/or general dilution ventilation, as needed, to reduce employee exposures to below applicable OSHA PELs and ACGIH TLVs (see Section 2 for PELs and TLVs).

**WORK/HYGIENE PRACTICES :** Use good personal hygiene when handling this product. Wash hands after use, before smoking, or before using the toilet.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>BOILING POINT :</b>	Not applicable.	<b>APPEARANCE :</b>	Granular, wet
<b>MELTING POINT :</b>	>2000°F	<b>ODOR :</b>	None.
<b>FREEZING POINT :</b>	Not applicable.	<b>pH :</b>	Not applicable.
<b>VAPOR PRESSURE :</b>	Not applicable.	<b>SPECIFIC GRAVITY :</b>	2.5 - 3.0
<b>VAPOR DENSITY :</b>	Not applicable.	<b>SOLUBILITY IN WATER :</b>	<20
<b>MOLECULAR WT. :</b>	Not applicable.	<b>POUNDS PER GALLON :</b>	Not applicable.
<b>% VOLATILES :</b>	Not applicable.	<b>EVAPORATION RATE :</b>	Not applicable.

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## 10. STABILITY AND REACTIVITY

<b>STABILITY:</b>	Stable.	<b>CONDITIONS TO AVOID :</b>	Not applicable.
<b>HAZARDOUS POLYMERIZATION :</b>	Will not occur.	<b>CONDITIONS TO AVOID:</b>	Not applicable.
<b>INCOMPATIBILITY :</b>	Strong acids and strong alkalis.		
<b>HAZARDOUS DECOMPOSITION :</b>	PO <sub>x</sub> emissions possible at very high temperatures.		

## 11. TOXICOLOGICAL INFORMATION

For aluminosilicates: The toxic dose threshold (TD<sub>Lo</sub>) for the rat was reported as 90 mg/kg, by the intrapleural route.

**15. REGULATORY INFORMATION**

CAA Title VI : This product does not contain nor was it manufactured using ozone-depleting chemicals.

TSCA Status: All components used in this product are on the Toxic Substances Control Act Inventory.

CERCLA Hazardous Substances : None.

SARA Title III :

Section 302 Extremely Hazardous Substances : None.

Section 311/312 Hazardous Categories : Immediate (Acute).

Section 313 Toxic Chemicals : None.

RCRA Status : Not regulated.

California Proposition 65 : The California Safe Drinking Water and Toxic Enforcement Act of 1986 ( Proposition 65) requires that the Governor of California publish a list of chemicals known to the State to cause cancer or reproductive harm.

Silica is on the Governor's Proposition 65 list.

Components used in this product may contain minor trace amounts of inherent naturally occurring elements (such as, but not limited to, arsenic, cadmium) that are on the Governor's Proposition 65 list.

**INTERNATIONAL:**

IARC : IARC has listed respirable crystalline silica from occupational sources as a Group 1 carcinogen.

CANADA (WHMIS) : All components used in this product are listed on the Domestic Substances List (DSL)

EUROPEAN COMMUNITY : All components used in this product are listed on Ecoin, the European Core Inventory.

AUSTRALIA : All components used in this product are listed on the AICS inventory.

JAPAN : Silicon is listed on MITI, the Ministry of International Trade Industry.

**16. OTHER INFORMATION**

**DESCRIPTION :** This product is a granular refractory mix.

**NFPA RATING :** **FLAMMABILITY :** 0 **TOXICITY :** 1 **REACTIVITY :** 0

**HMS RATING :** **FLAMMABILITY :** 0 **HEALTH :** 1 **REACTIVITY :** 0

All information appearing here is based on data believed to be reliable. However, **THE INFORMATION AND THE PRODUCT ARE PROVIDED WITHOUT ANY REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO REPRESENTATIONS AND WARRANTIES REGARDING ACCURACY OR CORRECTNESS, THE EFFECTS OF USING THE PRODUCT, THE RESULTS TO BE OBTAINED, FITNESS FOR A PARTICULAR PURPOSE, OR THE SAFETY OR TOXICITY OF THE PRODUCT.** It is the users' responsibility to determine the safety, toxicity, and suitability for their use of the product and to comply with all applicable statutes and regulations. The conditions or methods of handling, storage, use, and disposal of the product are beyond our control. For this and other reasons, National Refractories & Minerals Corporation does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of, relating to, or in any way connected with the handling, storage, use, or disposal of this product. This MSDS is not intended as a license to operate under, or a recommendation to infringe on, any patents. Appropriate warnings and safe handling instructions should be provided to handlers and users.

**REFERENCES:**

Lewis, R. J., *Hawley's Condensed Chemical Dictionary*, Twelfth Edition, Van Nostrand Reinhold Co., Inc., NY.

*Material Safety Data Sheets-Preparation*, ANSI Z400.1-1993, American National Standards Institute, NY.

*Threshold Limit Values and Biological Exposure Indices for Chemical Substances and Physical Agents*, ACGIH, OH.

Sax, N. I., *Dangerous Properties of Industrial Materials*, Ninth Edition, Van Nostrand Reinhold Co., Inc., NY.

Manufacturers/Suppliers Material Safety Data Sheets on raw materials used.