

**30513-1025****MATERIAL SAFETY DATA SHEET**

MARYLAND REFRACTORIES COMPANY  
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## Emergency Phone Numbers

Day (330) 532-9845, (800) 228-4672  
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Trade Name: High Duty Grog  
Date revised: January 1, 2007  
Revised by: Roy B. Wells

**SECTION I – PRODUCT IDENTIFICATION**

Chemical Name: Alumina Silicate  
Common Name: Fireclay, Calcined

**SECTION II – CHEMICAL COMPOSITION**

Ingredient	Typical %	CAS#	OSHA PEL	IARC Carcinogen	ACGIH TLV
AL2O3	35-45	1344-28-1	10.0mg/M3		
SiO2	48-56				
Quartz		14808-60-7	Note 1.	Y	0.05 mg/M3
Tridymite		15468-32-3	Note 1.		0.05 mg/M3
Cristobalite		14464-46-1	Note 1.	Y	0.05 mg/M3
Fe2O3	< 4				
CaO	< 3				
TiO2	< 4				

Note 1. When the presence of quartz, cristobalite and tridymite exist, the adjusted PELs are derived from the following formula:

$$\frac{10\text{mg/M}^3}{\% \text{quartz} + 2(\% \text{cristobalite}) + 2(\% \text{tridymite})} + 2$$

**SECTION III – PHYSICAL DATA**

Appearance and Odor: Buff colored granular product. odorless.

**SECTION IV – FIRE AND EXPLOSION DATA**

This product will not support combustion and may be used as an extinguishing media.

**SECTION V – HEALTH HAZARD**

Breathing dust is a health hazard. See above PEL (Permissible Exposure Level) for free crystalline silica.

Route of entry: Inhalation

Effects of overexposure: Cancer and Silicosis. The Hazard associated with crystalline silica occurs when fine dust is inhaled into the lungs over an extended time period.

**SECTION VI – REACTIVITY DATA**

Stability and Reactivity: This product is stable and is not reactive.

Hazardous Decomposition: None

**SECTION VII – SPILL AND LEAKS PROCEDURES**

Spills and leaks should be cleaned up and disposed of by a procedure that will eliminate the generation of respirable dust. Dampening the material with water before sweeping or vacuuming with a HEPA filter can accomplish this.

**SECTION VIII – INDUSTRIAL HYGIENE INFORMATION**

Ventilation: Local Exhaust and dust collection should be maintained to keep respirable dust exposure below the PEL.

Protective Clothing: NIOSH/MSHA approved respirators with a minimum rating equal to the PEL should be worn when exposures exceed the PEL.

Protective Clothing: Clothing should be cleaned in a manner that avoids the generation of respirable dust. Clothing should not be cleaned with an air hose.

**SECTION IX – SPECIAL PRECAUTIONS**

Special Precaution: Proper ventilation and breathing protection should be used in dusty areas.

Precautionary Labeling: Long-term exposure to airborne dust in excess of permissible exposure limits without proper respiratory protection will create cancer risks.

**SECTION X – SPECIAL INFORMATION**

- A. The OSHA Hazard Communication Standard requires that manufacturers report any new significant information regarding the potential health hazard of chemicals in their workplace. In July 1997, The International Agency for Research on Cancer (IARC) published Monograph 68, which classifies respirable crystalline silica in the form of quartz and cristobalite as a Group 1 carcinogen.

This product contains greater than 0.1 percent crystalline silica. Therefore it is important to prevent worker exposure to respirable dust in excess of the Permissible Exposure Level (PEL). Someone qualified to make such evaluations such as an Industrial Hygienist should determine workers' exposure. Until it is determined to be otherwise, workers exposed to any dust should wear NOISH or MSHA approved respiratory protection devices while working with this product.

The IARC evaluation includes the following:

There is *sufficient evidence* in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite from occupational sources.

There is *inadequate evidence* in humans for the carcinogenicity of amorphous silica.

There is *sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite.

There is *limited evidence* in experimental animals for the carcinogenicity of tridymite.

There is *inadequate evidence* in experimental animals for the carcinogenicity of uncalcined diatomaceous earth.

There is *inadequate evidence* in experimental animals for the carcinogenicity of synthetic amorphous silica.

Overall evaluation

In making the overall evaluation, the Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.

Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources *is carcinogenic to humans (Group 1)*.

- B. Silica and Alumina are listed as hazardous on the OSHA Z-Table and TLV list.
- C. In the year 2000, the ACGIH (American Conference of Governmental Industrial Hygienists) adopted a lower TLV and an A2 (suspected human carcinogen) designation for silica, crystalline quartz. This is half of the previous TLV.
- D. We have included our "Plain Language Comments" as page 4 of this MSDS. Please let us know if we can provide you with any additional information.

The attached MSDS (Material Safety Data Sheet) is furnished in partial compliance with the OSHA Hazard Communication Standard. We believe it fairly presents the hazards associated with the use, storage, handling and disposal of our product. We cannot foresee every use, misuse, mixture or combination of our product with other products, but if you have any questions we will try to help. Just give us a call.

Because of the complexity of the MSDS, we have included our "Plain Language Comments" at the bottom of this page. It is meant to give a quick overview of the health and safety aspects of our product and make the MSDS more useful. It does not supersede the information on the MSDS. Reference to a brand of respirator does not imply the endorsement of that product nor does it imply that respirator would be sufficient in every environment.

The Refractories Institute (412-281-6787) has published a brochure entitled "Crystalline Silica, a Workplace Hazard You Can Control." We will provide copies upon request.

#### PLAIN LANGUAGE COMMENTS

WARNING – This product contains crystalline silica. Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans. Avoid breathing the dust from this product without an approved respirator.

This material presents no other immediate hazard. It is generally non-poisonous, nonflammable, not reactive and not affected by temperature extremes.

Handle this product in a way that avoids the creation of respirable dust. Other special precautions are generally not needed for handling, storage, use, or disposal of this product. The only personal protective equipment normally needed is a respirator of the type needed for dusts containing crystalline silica.

Sample respirators include Moldex N99 Particulate and welding fume disposable respirators that cost less than \$5.00, or 3M 6000 series permanent respirators that cost about \$25.00 and have replaceable filters.

Powered Air Purifying Respirators (PAPRs) should be used if workers have long-term, frequent exposure.

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