

MATERIAL SAFETY DATA SHEET

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Prepared By: Research & Development
Telephone No: 336-299-1441 Ext. 20
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Section 1 – Product Name

Common Name: Basic Refractory Gunning Mix
Intended Use: Refractory Material
Product Name: Permagon S-I
Brand Code: MIX1024

Section 2 – Composition and Information on Hazardous Ingredients

Ingredient	CAS No.	% Weight	OSHA PEL	ACGIH TLV	Sec. 313
Magnesium Oxide	1309-48-4	60-100	15 mg/m ³ Fume total particulate	10 mg/m ³ Inhalable	No
Crystalline Silica (Total)	Not Applicable	0.1-1.0	Not Applicable	0.025 mg/m ³ Respirable	No
Cristobalite	14464-46-1		0.05mg/m ³ (Respirable)	Not Applicable	
Tridymite	15468-32-3		0.05mg/m ³ (Respirable)	Not Applicable	
Quartz	14808-60-7		0.1mg/m ³ (Respirable)	Not Applicable	
Sodium Silicate	1344-09-8	1-5	Not Established (2)	Not Established (3)	No

Notes: (1) The PEL and TLV values shown above are 8-hour time-weighted averages, unless otherwise specified. (2) Particulates not otherwise regulated – 15mg/m³ total dust, and 5 mg/m³ respirable dust. (3) Particles not otherwise specified – ACGIH believes that biologically inert, insoluble, or poorly soluble particles may have adverse effects and recommends that airborne concentrations should be kept below 3 mg/m³ respirable particles and 10 mg/m³ inhalable particles.

Section 3 – Hazards Identification

Emergency Overview: No unusual fire or spill hazard. Dusts may be irritating to skin, eyes and mucous membranes.

Primary Route(s) of Entry for Particulate: Eye: Yes Skin: Yes Inhalation: Yes Ingestion: No

Potential Adverse Health Effects:

Acute:	Eye: May irritate and/or abrade eyes
	Skin: May Irritate Skin
	Inhalation: Dusts of this product may be irritating to respiratory tract.
Chronic:	Eye: None Known
	Skin: None Known
	Inhalation: Prolonged breathing of dust of this product in excess of the stated PEL or TLV may cause lung disease (Silicosis). According to the International Agency for Research on Cancer (IARC), there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite from occupational sources.

Carcinogenicity: Crystalline Silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1, IARC, NTP).

California Proposition 65: This product contains crystalline silica, chemical known to the State of California to cause cancer

Signs and Symptoms of Overexposure: Coughing can result from overexposure to dust.

Medical Conditions Generally Aggravated by Exposure to Particles: Pre-existing disease or other conditions of the lungs, skin, eyes and mucous membranes.

Section 4- First Aid Measures

Eye Contact: Flush product from eyes using large amounts of water, if irritation continues, seek medical attention.

Skin Contact: Wash product from skin using soap and water, if irritation continues, seek medical attention.

Inhalation: If exposed to excessive levels of dusts, remove victim to fresh air. Seek medical attention if coughing or other symptoms persist.

Ingestion: As shipped, product not likely to be ingested; but if it occurs, do not induce vomiting. Seek medical attention.

Section 5 – Fire Fighting Measure

Flash Point: Not Applicable

Flammable Limits: Not Applicable

LEL: Not Applicable

UEL: Not Applicable

Autoignition Temperature: Not Applicable

Extinguishing Media: As appropriate for surrounding fire.

Fire Fighting Instructions: As appropriate for surrounding fire.

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Fire Fighting Equipment: Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus (SCBA) and full protective clothing (bunker gear) when fighting fires.

Hazardous Combustion Products: None

Flame Propagation or Burning Rate of Solid Material: Not Applicable

Flammability Classification (As defined by 29 CFR 1910.1200): Not Flammable

Section 6 – Accidental Release Measures

If dusts are generated during a spill, these should be collected by gently sweeping the material into a dustpan or collecting with a vacuum device. All personnel engaged in cleanup operations should adhere to the instructions outlined in Section 8 for personal protection. Disposal of wastes from cleanup operations should be carried out in accordance with the guidelines outlined in Section 13.

Section 7 – Handling and Storage

Handling: Avoid direct contact with product or dusts from product by wearing protective clothing, using approved respiratory protection and wearing gloves of the impermeable type.

Storage: The product should be stored in a dry location. Pallet protection such as shrink-wrap or stretch-wrap should be kept in place until the product is required for installation.

Section 8 – Exposure Control/Personal Protection

Engineering Controls: Process enclosures, local exhaust ventilation, or other engineering process controls may be necessary to keep any air contaminants associated with this product within their TLV's. This is particularly true if user operation generates dust.

Respiratory Protection: Since this product is a proprietary mixture of unique ingredients, it does not have an established limit for airborne concentration (PEL or TLV), which workers can routinely be exposed to without suffering adverse health effects. This MSDS is prepared to alert customers and other users to the various components of the product and their relative quantity and toxicity in the product as it is provided. The user must review his/her own circumstances and then determine what is required to establish a respiratory protection program that meets OSHA 1910.134 requirements. If workplace conditions warrant respiratory protection, use MSHA/NIOSH approved units as listed in the current 29 CFR 1910.134 for the existing conditions. Some type of respiratory protection is recommended for even the best conditions. Actual respirator selection should be made after consultation with a competent health and safety professional.

Eye Protection: Industrial type safety glasses offer some protection, goggles offer more.

Protective Gloves: As needed to prevent direct skin contact.

Other Protective Clothing or Equipment: Wear clothing designed to limit direct exposure to product or dusts associated with product. If clothing becomes contaminated, it should be laundered before wearing again. Maintain good personal hygiene. Wash hands thoroughly before eating or drinking.

Section 9 – Physical and Chemical Properties

Appearance: Granular Mixture

Vapor Pressure (mm Hg): Not Applicable

Odor: Earthy Odor

Vapor Density (Air=1): Not Applicable

Water Solubility: Moderate

pH (10% solids): 10-12

Density (H₂O=1): 2.5-3.5

Boiling Point (°C): Not Applicable

% Volatile (By Weight): 0

Melting Point: Not Applicable

Evaporation Rate: Not Applicable

Section 10 – Stability and Reactivity

Chemical Stability: This product is stable under normal conditions for shipping, storage and installation.

Conditions to Avoid: None

Incompatible Material: None

Hazardous Decomposition: None

Hazardous Polymerization: Not Applicable

Reactivity: None

Section 11 – Toxicological Information

	LD ₅₀	CD ₅₀
Magnesium Oxide	No Data	No Data
Crystalline Silica		
Cristobalite	No Data	No Data
Tridymite	No Data	No Data
Quartz	No Data	No Data
Sodium Silicate	No Data	No Data
Target Organs		
Magnesium Oxide	Eyes and respiratory system.	
Crystalline Silica		

Cristobalite	Respiratory
Tridymite	Respiratory
Quartz	Respiratory
Sodium Silicate	Not Available
Long Term Toxicity	
Magnesium Oxide	Not Available
Crystalline Silica	
Cristobalite	Repeated and prolonged inhalations may cause lung disease (Silicosis)
Tridymite	Repeated and prolonged inhalations may cause lung disease (Silicosis)
Quartz	Repeated and prolonged inhalations may cause lung disease (Silicosis)
Sodium Silicate	Not Available
Short Term Toxicity	
Magnesium Oxide	Not Available
Crystalline Silica	
Cristobalite	Repeated and prolonged inhalations may cause lung disease (Silicosis)
Tridymite	Repeated and prolonged inhalations may cause lung disease (Silicosis)
Quartz	Repeated and prolonged inhalations may cause lung disease (Silicosis)
Sodium Silicate	Not Available

Section 12 – Ecotoxicological Information

Accidental Release: No information has been developed regarding the ecotoxicity or environmental fate of this product.

Section 13 – Disposal Considerations

Waste Disposal Method: The as-manufactured refractory or dust from this material is not considered a hazardous waste as defined by 40 CFR 261. However, used product (and dusts generated during maintenance and tear-out operations) may be contaminated with other hazardous substances from the particular application (for example, metals). Therefore, appropriate waste analysis may be necessary to determine proper disposal. A qualified environmental professional in accordance with applicable federal, state, and local regulations should determine waste characterization and disposal/treatment methods.

Section 14 – Transport Information

DOT (Department of Transportation) Classification under 49 CFR 172.101: Not Regulated

UN (United Nations) Number: Not Applicable

NA (North American) Number: Not Applicable

Section 15 – Regulatory Information

Resco Products, Inc. considers this product to be hazardous as defined by the OSHA Hazardous Communications Standard (29 CFR 1910.1200). Section 2 chemicals, which must be addressed, and the summary of regulatory and other lists upon which they appear are:

Ingredient	CAS Number	List (s)
Magnesium Oxide	1309-48-4	1, 2, 3, 4
Crystalline Silica		
Cristobalite	14464-46-1	1,2,3,4
Tridymite	15468-32-3	1,2,3,4
Quartz	14808-60-7	1,2,3,4
Sodium Silicate	1344-09-8	1,2,4

The lists are as follows:

1. ACGIH TLV "Threshold Limit Values" (2006)
2. OSHA Air Contaminants – Permissible Exposure Limits
3. Canadian Domestic Substances List
4. EPA TSCA Chemical Inventory List

WHMIS Hazard Class (Canada): D2A

SARA Title III:

Section 302 Extremely Hazardous: None

Section 313 Toxic Chemicals: See Section 2

Section 16 – Other Information

This information and recommendations set forth herein are taken from sources believed to be accurate as of the date herein; however, Resco Products, Inc. makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.