

## MATERIAL SAFETY DATA SHEET

Resco Products, Inc.  
Penn Center West  
Building 2, Suite 430  
Pittsburgh, PA 15276  
Emergency Telephone No. : 412-494-4491

Prepared By: Research & Development  
Telephone No: 336-299-1441 Ext. 20  
Date: 06/28/11  
Supersedes Date: 04/27/06

### **Section 1- Product Name**

**Material Name:** Resin Bonded Dolomite Magnesium Oxide - Graphite Brick  
**Intended Use:** Refractory Material  
**Product Name:** RG50-DOL  
**Brand Code:** MIX5007

### **Section 2- Composition And Information On Hazardous Ingredients**

Ingredient	CAS No.	% Weight	OSHA PEL	ACGIH TLV	SEC 313
Calcium Oxide	1305-78-8	15-40	5 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	No
Magnesium Oxide	1309-48-4	40-70	15 mg/m <sup>3</sup> Total Particulate	10 mg/m <sup>3</sup> Inhalable	No
Phenolic Resin	--	1-5	Not Established	Not Established	No
Graphite	7782-42-5	1-5	15 mppcf (2)	2.0 mg/m <sup>3</sup> Respirable	No
Petroleum Wax	8002-74-2	1-5	Not Established (3)	2 mg/m <sup>3</sup>	No
Crystalline Silica (Total)	Not Applicable	0.0-1.0	Not Applicable	Not Applicable	No
Cristobalite	14464-46-1		0.05mg/m <sup>3</sup> Respirable	0.025mg/m <sup>3</sup> Respirable	
Tridymite	15468-32-3		0.05mg/m <sup>3</sup> Respirable	Withdrawn	
Quartz	14808-60-7		0.1 mg/m <sup>3</sup> Respirable	0.025 mg/m <sup>3</sup> Respirable	

**Notes:** (1) The PEL and TLV values shown above are 8-hour time-weighted averages, unless otherwise specified. "Not Established" means that no PEL or TLV has been assigned. (2) Millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques. (3) Particulates not otherwise regulated – 15 mg/m<sup>3</sup> total dust, and 5 mg/m<sup>3</sup> respirable dust. (4) This product has a constituent that contains a mixture of calcium and magnesium oxides, it can be referred to as dead burned dolomite.

### **Section 3- Hazards Identification**

**Emergency Overview:** Do not fight fire with water, keep material dry. Dust may be irritating to skin, eyes, gastrointestinal tract, and mucous membranes.

**Primary Route(s) of Entry for Particulate:** Note that eye and inhalation factors would be for sawing or tear out.

**Eye:** Yes    **Skin:** Yes    **Inhalation:** Yes    **Ingestion:** No

#### **Potential Adverse Health Effects:**

<b>Acute:</b>	Eye: Severe irritation, intense tearing, burns.
	Skin: Removes natural skin oils; blotches, itching and superficial burns in case of sweating.
	Inhalation: Dust of this product may be irritating to respiratory tract.
<b>Chronic:</b>	Eye: Possible blindness when exposure is prolonged
	Skin: None known
	Inhalation: Prolonged or repeated inhalation of dusts 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 (IARC Group 1, NTP).

**California Proposition 65:** This product contains crystalline silica, a 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 diseases 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 for at least 15 minutes, 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 dust remove victim to fresh air. If necessary, seek medical attention.

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

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

**Flash Point:** Of petroleum wax >375°F

**Flammable Limits:** Not Applicable

**LEL:** Not Applicable

**UEL:** Not Applicable

**Autoignition Temperature:** Not Applicable

**General Hazard:** Product will not burn, but does contain small quantities of chemicals which can generate toxic and/or irritating vapors when initially heated.

**Extinguishing Media:** Use regular foam, carbon dioxide, or dry chemical media to fight fires. Avoid water stream on brick

**Fire Fighting Instructions:** Reacts with water to form:  $\text{Ca}(\text{OH})_2$ ,  $\text{Mg}(\text{OH})_2$ , and heat.

**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:** Fire may produce irritant gasses and carbon monoxide.

**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**

Brick spills are remedied by recovering and restacking the shapes. If dusts are generated during the spill, these should be collected by gently sweeping the material into a dust pan 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 to the guidelines outlined in Section 13.

#### **Section 7- Handling And Storage**

**Handling:** Avoid direct contact with product or dust, 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 and protected from humidity. 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:** If brick are sawed, or being torn out; enclosures, local exhaust ventilation, or other engineering process controls may be necessary to keep any air contaminants within their TLV's. This is particularly true if the user operation generates dust, vapors, or mist.

**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 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. 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. Contact lenses should not be worn when working with lime products.

**Protective Gloves:** Use as needed to prevent direct skin contact.

**Other Protective Clothing or Equipment:** Wear clothing designed to limit direct exposure to product, or dust, vapors, or mist associated with product. If clothing becomes contaminated, it should be laundered before wearing again. Steel toe boots are recommended for brick products. Maintain good personal hygiene. Wash hands thoroughly before eating or drinking.

#### **Section 9- Physical and Chemical Properties**

<b>Appearance:</b> Shaped brick – black color	<b>Vapor Pressure:</b> Not Applicable
<b>Odor:</b> Slight Resin Odor	<b>Vapor Density:</b> Not Applicable
<b>Water solubility:</b> See section 10-Chemical Stability	<b>pH:</b> Not Applicable
<b>Density (H<sub>2</sub>O=1):</b> 3.00 g/cm <sup>3</sup>	<b>Boiling Point:</b> Not Applicable
<b>Melting Point:</b> Greater than 2,500 °F	

#### **Section 10- Stability And Reactivity**

**Chemical Stability:** Reacts with water to form:  $\text{Ca}(\text{OH})_2$ ,  $\text{Mg}(\text{OH})_2$  and heat.

**Conditions to avoid:** Keep out of the vicinity of incompatible materials.

**Incompatible Materials:** Acids; reactive fluoridated brominated or phosphorous compounds; aluminum (may form hydrogen gas), reactive metals; organic acid anhydrides; nitro-organic compounds; interhalogenated compounds.

**Hazardous Decomposition or Combustion Products:** This product contains carbon in some form, which may undergo incomplete combustion when heat is applied. This may result in the generation of toxic fumes or simple asphyxiants. Carbon monoxide could be produced under these circumstances.

**Hazardous Polymerization:** None

**Reactivity:** Reacts with acids to form calcium salts while generating heat

### Section 11- Toxicological Information

As shown in section 2, this product contains a phenolic resin. The phenolic resin contains less than 1% free phenol after curing, which is part of the manufacturing process. Curing is achieved by heating the product in the range of 300-400°F. This removes most of the volatile fraction of the resin. In addition to free phenol, the cured resin contains a trace of formaldehyde (less than 0.1%).

**Incomplete Combustion Products:** Phenolic resin may undergo incomplete combustion when high heat is first applied to this product. Certain chemical compounds produced by incomplete combustion, in combination with poor air handling practices, may result in TLVs (threshold limit values) being exceeded for specific air contaminants.

	LD <sub>50</sub>	LC <sub>50</sub>
Calcium Oxide	No Data	No Data
Magnesium Oxide	No Data	No Data
Phenolic Resin	No Data	No Data
Graphite	12,600 mg/kg (oral rat)	No Data
Petroleum Wax	No Data	No Data
Crystalline Silica (Total)		
Cristobalite	No Data	No Data
Tridymite	No Data	No Data
Quartz	No Data	No Data

#### Target Organs

Calcium Oxide	Skin - Eyes and respiratory system when cutting or in tear out of brick
Magnesium Oxide	Eyes and respiratory system when cutting or in tear out of brick
Phenolic Resin	No Data
Graphite	Respiratory system and cardiovascular system
Petroleum Wax	Skin and respiratory system
Crystalline Silica (Total)	
Cristobalite	Respiratory
Tridymite	Respiratory
Quartz	Respiratory

#### Long Term Toxicity

Calcium Oxide	Possible blindness
Magnesium Oxide	Not Available
Phenolic Resin	Not Available
Graphite	Not Available
Petroleum Wax	In rats, chronic ingestion has shown accumulation in liver-spleen with associated nonspecific immune response.
Crystalline Silica (Total)	
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).

#### Short Term Toxicity

Calcium Oxide	Irritation: Skin and gastrointestinal tract – Eyes and respiratory system when cutting or being torn out.
Magnesium Oxide	Not Available
Phenolic Resin	Not Available
Graphite	Irritant to eyes and mucous membranes
Petroleum Wax	Wax fumes may irritate respiratory tract, molten product burns on contact with skin
Crystalline Silica (Total)	
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).

### Section 12- Ecological Information

**Accidental Release:** Uncontrolled spillage in surface waters should be avoided, since the increase in pH could be detrimental to fish. Material is harmful to aquatic life in high concentrations.

### 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 dust 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. Waste characterization and disposal/treatment methods should be determined by a qualified environmental professional in accordance with applicable federal, state, and local regulations.

<b>Section 14-Transport Information</b>
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DOT (Department of Transportation) Classification under 49 CFR 172.101: Not Regulated

UN (United Nations) Number: Not Applicable

NA (North American) Number: Not Applicable

<b>Section 15- Regulatory Information</b>
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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 NUMER	LIST
Calcium Oxide	1305-78-8	1,2,3,4
Magnesium Oxide	1309-48-4	1,2,3,4
Phenolic Resin	--	--
Graphite	7782-42-5	1,2,3,4
Petroleum Wax	8002-74-2	1,3,4
Crystalline Silica	Not Applicable	
Cristobalite	14464-46-1	1,2,3,4
Tridymite	15468-32-3	1,2,3,4
Quartz	14808-60-7	1,2,3,4

The lists are as follows:

1. ACGIH TLV "Threshold Limit Values" (2010)
2. OSHA Air Contaminates- Permissible Exposure Limits
3. Canadian Domestic Substance List
4. EPA TSCA Chemical Inventory List

**SARA Title III:** Section 311/312 Hazardous Categories: Irritant

<b>Section 16- Other Information</b>
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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.