

MATERIAL SAFETY DATA SHEET

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Prepared By: Research & Development
Telephone No: 336-299-1441 ext. 20
Date: 12/08/11
Supersedes Date: 08/27/08

Section 1- Product Name

Material Name: High Alumina Chemically Bonded Castable
Intended Use: Refractory Material
Product Name: Rescobond 90-A
Brand Code: MIX1201

Section 2- Composition And Information On Hazardous Ingredients

Ingredient	CAS No.	% Weight	OSHA PEL	ACGIH TLV	SEC 313
Alumina	1344-28-1	60-100	15 mg/ m ³ Total Dust 5 mg/m ³ Respirable	Withdrawn Al Metal & Insoluble Compounds 1 mg/m ³ Respirable	No
Mono-Magnesium Phosphate	7757-86-0	3-7	Not Established (1)	2 mg/m ³	No
Magnesium Oxide	1309-48-4	1-5	15 mg/m ³ Total Particulate	10 mg/m ³ Inhalable	No
Aluminum Fluoride	15098-87-0	0.5-1.5	2.5 mg/m ³ as F (2)	2 mg/m ³ as Al (3)	No
Barium Sulfate	7727-43-7	1-5	15 mg/m ³ Total Dust 5 mg/m ³ Respirable	10 mg/m ³	No

Notes: 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. (1) Particulates not otherwise regulated – 15 mg/m³ total dust, and 5 mg/m³ respirable dust. (2) Listed as fluorides. (3) Listed as soluble aluminum salts.

Section 3- Hazards Identification

Emergency Overview: No unusual fire or spill hazard. Dust 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: Dust of this product may be irritating to respiratory tract.
Chronic:	Eye: Dusts of this product may cause reddening of swelling of the eye.
	Skin: Dusts of this product may cause a skin rash (dermatitis).
	Inhalation: Dusts of this product may cause irritation to the respiratory tract

Carcinogenicity: None of the ingredients in Section 2 are listed by IARC, NTP or ACGIH as carcinogens or potential carcinogens.

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, 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. Seek medical attention if coughing or other symptoms persist.

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: 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.

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.

Product Name: Rescobond 90-A

Date: 12/08/11

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 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 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 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. Some type or respiratory protection is recommended even for 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: 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. Maintain good personal hygiene. Wash hands thoroughly before eating or drinking.

Section 9- Physical and Chemical Properties

Appearance: Granular mixture	Vapor Pressure: Not Applicable
Odor: Earthy Odor	Vapor Density: Not Applicable
Water solubility: Slight	pH: Not Determined
Density (H₂O=1): 2.8	Boiling Point: Not Applicable
% Volatile (By Weight @ 1800°F): 0	Melting Point: Greater than 2500°F

Section 10- Stability And Reactivity

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

Conditions to avoid: None

Incompatible Materials: None

Hazardous Decomposition: None

Hazardous Polymerization: None

Reactivity: Hydraulic Setting

Section 11- Toxicological Information

	LD₅₀	LC₅₀
Alumina	No data.	No data.
Mono-Magnesium Phosphate	No data.	No data.
Magnesium Oxide	No data.	No data.
Aluminum Fluoride	Oral, rat 2,000 mg/m ³	No data.
Barium Sulfate	No data.	No data.
Target Organs		
Alumina	Respiratory	
Mono-Magnesium Phosphate	Skin and respiratory system.	
Magnesium Oxide	Eyes and respiratory system	
Aluminum Fluoride	Skin, eyes and respiratory tract.	
Barium Sulfate	No data.	
Long Term Toxicity		
Alumina	No data	
Mono-Magnesium Phosphate	Irritation to skin and respiratory organs.	

Magnesium Oxide	Not available.
Aluminum Fluoride	Chronic exposure may cause fluoride deposition in bones and cartilage. Can be accompanied by stiffness in the joints.
Barium Sulfate	No data.
Short Term Toxicity	
Alumina	Irritant to eyes, and mucous membranes.
Mono-Magnesium Phosphate	Irritant to skin and respiratory organs.
Magnesium Oxide	Not available.
Aluminum Fluoride	May cause irritation of the skin, eyes and respiratory tract.
Barium Sulfate	No data.

Section 12- Ecological 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 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.

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 NUMER	LIST
Alumina	1344-28-1	1,2,3,4
Mono-Magnesium Phosphate	7757-88-0	1,2,3,4
Magnesium Oxide	546-93-0	1,2,3,4
Aluminum Fluoride	15098-87-0	1,2,3,4
Barium Sulfate	7727-43-7	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

WHMIS Hazard Classification (Canada): D-2B

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

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.