MATERIAL SAFETY DATA SHEET

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Telephone No: **336-299-1441 Ext. 20**
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Section 1- Product Name

Material Name: **Chrome-Alumina Refractory Castable**
Intended Use: **Refractory Material**
Product Name: **Kricon CCM30**
Brand Code: **MIX7154**

Section 2- Composition And Information On Hazardous Ingredients

Ingredient	CAS No.	% Weight	OSHA PEL	ACGIH TLV	SEC 313
Alumina	1344-28-1	40-70	15 mg/m^3 Total dust 5 mg/m^3 Respirable	10 mg/m^3 (2)	No
Chromium (III) Oxide	1308-31-2	15-40	0.5 mg/m^3 As Cr	0.5 mg/m^3 As Cr	Yes
Calcium Aluminate Cement	12042-68-1	3-7	Not Established (3)	Not Established (4)	No
Crystalline Silica (Total)	Not Applicable	0.1-1.0	Not Applicable	0.025 mg/m^3 Respirable	No
Cristobalite	14464-46-1		0.05 mg/m^3 Respirable	Not Applicable	
Tridymite	15468-32-3		0.05 mg/m^3 Respirable	Not Applicable	
Quartz	14808-60-7		0.1 mg/m^3 Respirable	Not Applicable	

Notes: (1) The PEL and TLV values shown above are 8-hour time-weighted averages, unless otherwise specified. (2) The TLV value is for particulate matter containing no asbestos and <1% crystalline silica. (3) Particulates not otherwise regulated – 15 mg/m^3 total dust, and 5 mg/m^3 respirable dust. (4) Particles not otherwise specified – ACGIH believes that biologically inert, insoluble, or poorly soluble particles may have adverse effects and recommends that airborne concentrations be kept below 3 mg/m^3 respirable particles and 10 mg/m^3 inhalable particles.

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: 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, a chemical known to the State of California to cause cancer. This product also contains chromite (Cr*+3) which may in normal use, be converted chemically to a chromate (Cr*+6) hexavalent chrome, 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, 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: Fire conditions may produce small amounts of hexavalent chromium and other oxidation products.
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 contaminates 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. When dust is generated, some type or respiratory protection is recommended. 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. 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, Green Color	**Vapor Pressure:** Not Applicable
Odor: Earthy Odor	**Vapor Density:** Not Applicable
Water solubility: Slight	**pH:** Not Determined
Density (H_2O=1): 1.8	**Boiling Point:** Not Applicable
% Volatile (By Weight@ 1800°F): 0	**Melting Point:** Greater than 3,000 °F

Section 10- Stability And Reactivity

Chemical Stability: This product is stable under anticipated conditions of shipping, storage, and installation.
Conditions to avoid: None
Incompatible Materials: May react with strong acids, such as hydrofluoric acid. Chromic oxide may react with alkali at high temperatures under oxidizing conditions.
Hazardous Decomposition: None
Hazardous Polymerization: None
Reactivity: Hydraulic Setting

Section 11- Toxicological Information

	LD_{50}	LC_{50}
Alumina	No Data	No Data
Chromium (III) Oxide	No Data	No Data
Crystalline Silica		
Cristobalite	No Data	No Data
Tridymite	No Data	No Data
Quartz	No Data	No Data

Calcium Aluminate Cement	No Data	No Data
Target Organs		
Alumina	Respiratory	
Chromium (III) Oxide	Eyes, skin and mucous membranes.	
Crystalline Silica		
Cristobalite	Respiratory	
Tridymite	Respiratory	
Quartz	Respiratory	
Calcium Aluminate Cement	No Data	
Long Term Toxicity		
Alumina	No Data	
Chromium (III) Oxide	Not classifiable as a carcinogen (ACGIH).	
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)	
Calcium Aluminate Cement	No Data	
Short Term Toxicity		
Alumina	No Data	
Chromium (III) Oxide	Irritant to skin, eyes and mucous membranes.	
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)	
Calcium Aluminate Cement	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 dusts generated during maintenance and tear-out operations) may be contaminated with other hazardous substances from the particular application (for example, metals). Chromite (Cr*+3) may in normal use, be converted chemically to a chromate (Cr*+6). Hexavalent chromium (Cr*+6) is considered a hazardous material. 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
Chromium (III) Oxide	1308-31-2	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
Calcium Aluminate Cement	12042-68-1	4

The lists are as follows:

1. ACGIH TLV “Threshold Limit Values” (2006)
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.