

SAFETY DATA SHEET

MISSOURI REFRACTORIES COMPANY, INC.
PRODUCT NAME: MORCOSET 85HW G17 V
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FILE NAME: MORCOSET 85 HW G17 V SDS.DOCX
SDS ISSUE DATE: 11/10/2010
SDS REVISION DATE: 3/20/2015
SDS REVISION NUMBER: 4

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MORCOSET 85HW G17 V
MANUFACTURER: Missouri Refractories Company, Inc.
ADDRESS: 1198 Mason Circle, Pevely, MO 63070-1635
EMERGENCY PHONE: +1 636 479 7770 7:00-16:00 CST MONDAY-FRIDAY
OTHER PHONE: +1 636 479 7171
FAX PHONE: +1 636 479 7773
PRODUCT TYPE: Refractory Mortar
PRODUCT USE: Refractory Material
PREPARED BY: Missouri Refractories Company, Inc.

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
SKIN CORROSION: Category 3
SKIN IRRITATION: Category 3
EYE EFFECTS: Category 2B
CARCINOGENICITY: Category 1A

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

ROUTES OF ENTRY:
Eye: Yes
Skin: Yes
Inhalation: Yes
Ingestion: No

POTENTIAL HEALTH EFFECTS
EYES: Dusts irritates
SKIN: Prolonged handling dries skin
INGESTION: None known
INHALATION: Irritates respiratory tract

CHRONIC HEALTH HAZARDS: Long-term inhalation of respirable kaolin dusts has caused lung fibrosis (kaolinosi) in experimental animals and workers. 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.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Pre-existing disease or other conditions of the lungs, skin, eyes and mucous membranes.

CARCINOGENICITY: Crystalline Silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1, IARC, NTP). Titanium dioxide inhaled cristobalite from occupational sources is possibly carcinogenic to humans (Group 2B, IARC, NTP).

CALIFORNIA PROPOSITION 65: This product contains crystalline silica and titanium dioxide, chemicals known to the State of California to cause cancer.

SIGNS AND SYMPTOMS OF OVEREXPOSURE: Overexposure to dust leads to coughing.

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	%	CAS#	OSHA PELs	ACGIH TLVs	Carcinogen
Calcined Bauxitic Kaolin	<90	1302-93-8	15 mg/m ³ total 5 mg/m ³ resp.	2 mg/m ³ resp.	no
Aluminum Oxide	<20	1344-28-1	15 mg/m ³ total 5 mg/m ³ resp.	10 mg/m ³ total	no
Aluminum Silicate	<20	66402-68-4	15 mg/m ³ total	10 mg/m ³ total	no
Graphite	<20	7782-42-5	2.5 mg/m ³ total dust	2 mg/m ³ total dust	no
Titanium Dioxide	<1	13463-67-7	15 mg/m ³ total	10 mg/m ³ total	yes
Ethylene Glycol	<5	107-21-1	125 mg/m ³	100 mg/m ³	no
Calcium Lignosulfonates	<5	8061-52-7	15 mg/m ³ total 5 mg/m ³ resp.	10 mg/m ³ total	no
Quartz	<1	14808-60-70	30 mg/m ³ / % SiO ₂ +2 total 10 mg/m ³ / % SiO ₂ +2 resp.	0.05 mg/m ³	yes
Cristobalite	<1	14464-46-1	Half the value calculated from the respirable dust formulae for quartz	0.025 mg/m ³	yes
Tridymite	<1	15468-32-3	Half the value calculated from the respirable dust formulae for quartz	0.025mg/m ³	no

SECTION 3 NOTES:

SECTION 4: FIRST AID MEASURES

EYES: Flush product from eyes using large amounts of water. If irritation continues, seek medical attention.

SKIN: Wash product from skin using soap and water. If irritation continues, seek medical attention.

INGESTION: Do not induce vomiting. If irritation continues, seek medical attention.

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

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: None

SECTION 5: FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: As appropriate for surrounding fire.

SECTION 5 NOTES: This product is not combustible or explosive.

SECTION 6: ACCIDENTAL RELEASE MEASURES

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. Dampen prior to sweeping to minimize dust production. All personnel engaged in cleanup operations should adhere to the instructions outlined in section 8 for personal protection. Do not empty material into drains, sewers or water courses as fines harden in contact with water. 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 as outlined in Section 8.

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. Store in manufacturers sealed container. Avoid heat sources and direct sunlight.

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SECTION 8: EXPOSURE CONTROLS/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.

Particles not otherwise classified (ACGIH)
Inhalable: TLV(TWA) = 10 mg/m³
Respirable: TLV(TWA) = 3 mg/m³

VENTILATION: Mechanical ventilation is recommended wherever feasible for evacuation of dust during handling.

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. The user must review his/her own circumstances and then determine what is required to establish a respiratory protection program that meets standards. Some type of 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 or goggles.

SKIN PROTECTION: Impervious gloves to prevent skin contact.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Wear clothing designed to limit direct exposure to product, dust, vapors, or mist associated with product. If clothing becomes contaminated, it should be laundered before wearing again. Do not take contaminated clothing home.

WORK HYGIENIC PRACTICES: Maintain good personal hygiene. Wash hands thoroughly before eating or drinking. Do not eat, drink or smoke when using.

EXPOSURE GUIDELINES: Repeated and prolonged inhalations may cause lung disease (silicosis). Prolonged skin contact causes irritation.

OTHER: Where there is the potential exposure to free silica (cristobalite), the following warnings should be readily visible and posted near entrances to work areas: WARNING! FREE SILICA WORK AREA. Unauthorized persons keep out. The following should be posted within the work area where potential exposure may occur: WARNING! FREE SILICA WORK AREA. Avoid Breathing Dust. May Cause Delayed Lung Injury (silicosis). (NIOSH Criteria Document, Occupational Exposure to Crystalline Silica).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Grey to tan granular mixture of powders and binders.

PHYSICAL STATE: Granular wet mixture

ODOR: Earthy, sometimes faint sulfur odor on mixing with water

ODOR THRESHOLD: Not Available

pH (upon water addition): 7-11

MELTING POINT: >3000°F; >1600°C

BOILING POINT: Not Applicable

FLASH POINT: Not Applicable

EVAPORATION RATE: Not Applicable

FLAMMABILITY: Not Applicable

UPPER FLAMMABILITY LIMIT: Not Applicable

LOWER FLAMMABILITY LIMIT: Not Applicable

VAPOUR PRESSURE: Not Applicable

VAPOUR DENSITY: Not Applicable

SPECIFIC GRAVITY (H₂O = 1): 2.5

SOLUBILITY IN WATER: Slight

PARTITION COEFFICIENT: Not Applicable

AUTO-IGNITION TEMPERATURE: Not Applicable

DECOMPOSITION TEMPERATURE: Not Applicable

VISCOSITY: Not Applicable

REACTIVITY WITH WATER: Not Applicable

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable in a dry environment.

SECTION 10 NOTES: When mixed with water reacts chemically and hardens hydraulically.

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SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

ACUTE TOXICITY: None

SKIN CORROSION: None

SKIN IRRITATION: Irritant contact dermatitis

SERIOUS EYE DAMAGE: Particulate damage

SERIOUS EYE IRRITATION: Alkali irritation

RESPIRATORY SENSITIZATION: Alkali and dust irritation

SKIN SENSITIZATION: Alkali irritant contact dermatitis

GERM CELL MUTAGENICITY: Information not available

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

REPRODUCTIVE TOXICITY: Information not available

STOT-SINGLE EXPOSURE: Information not available

STOT REPEATED EXPOSURE: Information not available

ASPIRATION HAZARD: Alkali and dust irritation

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: After hydration the product is stable in soil and in water, with a negligible mobility of its constituents.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Landfill, according to local regulations. No sewage disposal. The as manufactured material, 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

U.S. DEPARTMENT OF TRANSPORTATION: Not regulated

OTHER AGENCIES:

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

UN (United Nations) Number: Not Applicable

NA (North American) Number: Not Applicable

ADR (ROAD): Not regulated

RID (RAIL): Not regulated

IMDG (SEA): Not regulated

OAC/IATA (AIR): Not regulated

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SECTION 15: REGULATORY INFORMATION

This product is hazardous as defined by the OSHA Hazardous Communications Standard (29 CFR 1910.1200). Section 2 chemicals, which must be addressed. The lists upon which they appear are:

INGREDIENT	CAS NUMER	LIST
Calcined Bauxitic Kaolin	1302-93-8	ACGIH TLV "Threshold Limit Values" (2007), OSHA Air Contaminates-Permissible Exposure Limits, Canadian Domestic Substance List, EPA TSCA Chemical Inventory List
Alumina	1344-28-1	ACGIH TLV "Threshold Limit Values" (2007), OSHA Air Contaminates-Permissible Exposure Limits, Canadian Domestic Substance List, EPA TSCA Chemical Inventory List
Titanium Dioxide	13463-67-7	OSHA/EPA Occupational Chemical Database (2012), IARC-2B, NIOSH-Ca, TLV-A4
Ethylene Glycol	107-21-1	ACGIH TLV "Threshold Limit Values" (2007), OSHA Air Contaminates-Permissible Exposure Limits, Canadian Domestic Substance List, EPA TSCA Chemical Inventory List
Graphite	7782-42-5	ACGIH TLV "Threshold Limit Values" (2007), OSHA Air Contaminates-Permissible Exposure Limits, Canadian Domestic Substance List, EPA TSCA Chemical Inventory List
Calcium Lignosulfonates	8061-52-7	ACGIH TLV "Threshold Limit Values" (2007), OSHA Air Contaminates-Permissible Exposure Limits, Canadian Domestic Substance List, EPA TSCA Chemical Inventory List
Cristobalite	14464-46-1	ACGIH TLV "Threshold Limit Values" (2007), OSHA Air Contaminates-Permissible Exposure Limits, Canadian Domestic Substance List, EPA TSCA Chemical Inventory List
Tridymite	15468-32-3	ACGIH TLV "Threshold Limit Values" (2007), OSHA Air Contaminates-Permissible Exposure Limits, Canadian Domestic Substance List, EPA TSCA Chemical Inventory List
Quartz	14808-60-7	ACGIH TLV "Threshold Limit Values" (2007), OSHA Air Contaminates-Permissible Exposure Limits, Canadian Domestic Substance List, EPA TSCA Chemical Inventory List

CANADIAN WHMIS: D2A, D2B

EPCRA Section 302 (EHSs): This product does not contain ingredients subject to reporting requirements of 40 CFR Part 355, Appendices A and B (Extremely Hazardous Substances).

CERCLA, Section 304: This product does not contain ingredients subject to state and local reporting under Section 304 of SARA Title III as listed in 40 CFR Part 302, Table 302.4.

SARA 313 REPORTING REQUIREMENTS: This product does not contain ingredients subject to the reporting requirements of Section 313 SARA, and Section 6607 of the Pollution Prevention Act.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and by definition meets the requirements of the following category: Chronic Health Hazard

CALIFORNIA Proposition 65: This product contains crystalline silica, an ingredient known to the State of California to cause cancer. WARNING! This product contains a chemical known to the State of California to cause cancer. The listing of titanium dioxide (airborne, unbound particles of respirable size) as a carcinogen is effective September 2, 2011. The listing does not cover titanium dioxide when it remains bound within a product matrix.

TSCA (Toxic Substances Control Act): All ingredients contained in this product are on the TSCA inventory.

PA Right to Know Regulated Chemical(s): Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Titanium dioxide, Silicon dioxide, amorphous, graphite

NJ Right to Know Regulated Chemical(s): Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Titanium dioxide, Silicon dioxide, amorphous, graphite

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SECTION 16: OTHER INFORMATION

PREPARATION INFORMATION: Prepared in accordance with Annex 4 "Guidance On The Preparation Of Safety Data Sheets (SDS) ©United Nations, 2009 and Occupational Safety and Health Administration "The Globally Harmonized System for Hazard Communication."

DISCLAIMER: Reasonable care has been taken in the preparation of the information provided, and believed to be correct as of the issue date. However, Missouri Refractories Company Inc. makes no representation or warranties, and assumes no responsibility as to the completeness and accuracy thereof. Users must make their own determination as to the suitability of the product for their purpose prior to use. Missouri Refractories Company Inc. will not be responsible for any damages of any nature directly or indirectly whatsoever resulting from the use of, reliance upon, or the misuse of the information contained herein.

This information is offered solely for the use in the evaluation of this product in respect, to safety, health, and compliance with international, federal, state and/or local regulations.

LEGEND:

<: Less than

>: Greater than

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: Accord Dangereux Routier

C: Ceiling Limit

CAS: Chemical Abstracts Service

CFR: Code of Federal Regulations

DOT: Department of Transportation

EPA: Environmental Protection Agency

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods

MSHA: Mine Safety and Health Administration

N/A: Not Applicable

NA: North America

NAIF: No apparent information found

NFPA: National Fire Protection Association

NIOSH: National Institute for Occupational Safety and Health

NTP: National Toxicology Program

OAIC: Organisation de l'Aviation Civile Internationale

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

SARA: Superfund Amendment and Reauthorization Act

SDS: Safety Data Sheet

TLV: Threshold Limit Value

TSCA: Toxic Substances Control Act of 1976

TWA: Time Weighted Average

UN: United Nations

WHMIS: Workplace Hazardous Materials Information System