Material Safety Data Sheet

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Trade Name: SAIRSET **Manufacturer:** HARBISON-WALKER REFRACTORIES

MSDS Code: **Type of Chemical:** MORTAR

MSDS Date: 1/30/04

Notes:
SECTION I - PRODUCT NANM AND COMWANY EDENTIFICATION

Material Name: Fireclay/High Alumina Mortars (Wet)
Common Name: Wet Fireclay Mortar/Wet High Alumina Mortar
Intended Use: Refractory Material
Product Name: 'SAIRSET

Analogous-Products:
'SAIRMIX-7,'SAIRNIIX-7 A,'SAIRSET,'SAIRSET DC 'SAIRSET DC-WINTERIZED,'SAIRSET WINTERIZED
ALADIN BOND SUP,ARCOLOK DC, CORALITE BOND (W) CORALITE BOND (WET),GREENPATCH-421,GREENPATCH-421 WINTER GRENSET-80,GRENSET-80 BH,GRENSET-80 BH WINTER GRENSET-80 WINTERIZED,GREENSET-80-M GREENSET-80-M WINTERIZED,HARWACO 13OND (W)
HARWACO 13OND (WET),LADLE MORTAR,MORTAR MIX 430 MORTAR MIX 430 WINTER,MORTAR MIX 478,MORTAR MIX 497 NO. 36 REFR CEMENT-W,NO. 36 REFRACTORY CEMENT NO. T-36 REPR CEMENT,NO. T-36 REFR CEMENT-WINTERIZED SUPER HARBOND (WET),SUPER HARBOND MASTIC

Manufacturer/Supplier:

Harbison-Walker Refractories Company MSDS Requests by Phone: (412) 562-6200
600 Grant Street MSDS Requests by FAX: (412) 562-6392
Pittsburgh, PA 15219 MSDS Technical Information: (412) 562-6437
Product Application Information- (412) 562-6200
CHEMTREC CHEMICAL EMERGENCY IN U.S.A.-. 1-800-424 9300 (24 HOURS)

Date Issued:19 September 2000

Date Revised: 28 February 2000

SECTION 2 - COMPOSTION AND INFORMATION ON INGREDIIENTS

INGREDIENT CAS NUMBER %WEIGHT OSHA PEL ACGIH TLV SEC 313

Aluminum Silicate 1302-76-7 0-65 10 mg/m3 2 mg/m3 NO
(Kyanite)

Calcined Bauxite 1318-16-7 0-66 15 mg/m3 10 mg/m3 NO
(Total Dust) (Total Dust)

Aluminum Silicate 1302-93-8 0-40 10 mg/m3 2 mg/m3 NO
(Mullite) (Total Dust) (As Al)

Clay 1332-58-7 0-43 5 mg/m3 2 mg/m3 NO
(Respirable) (Respirable)

Silica, Quartz 14808-60-7 <18 See Note 6 0.1 mg/m3 NO
(Respirable)

Silica, Cristobalite 14464-46-1 0-10 See Note 6 0.05 mg/m3 NO
(Respirable)

Silica, Fused 60676-86-0 0-5 0.1 mg/m3 0.1 mg/m3 NO

(Total Dust) (Respirable)

Sodium Silicate 6834-92-0 0-22 No Data No Data NO

Alumina 1344-28-1 0-15 15 mg/m3 10 mg/m3 NO
(Total Dust) (Total Dust)

Silica, Diatomaceous 61790-53-2 0-2 15 mg/m3 3 mg/m3 NO
Earth (Total Dust) (Respirable)

Sodium Hexameta- 10124-56-8 0-1 No Data No Data NO
phosphate

Ethylene Glycol 107-21-1 0-4 CL 50 ppm CL 50 ppm YES
Vapor (Ceiling) Vapor (Ceiling)

Water 7732-18-5 Balance No Data No Data NO

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. Substances regulated by OSHA as "particulates not otherwise regulated" are referred to as PNOR and the established PEL is 15 mg/m3 total dust and 5 mg/m3 respirable fraction. Substances addressed by ACGIH as "particulates not otherwise classified" are referred to as PNOC and recommended TLV is 10 mg/m3 total dust containing no asbestos and less than 1 percent crystalline silica. (2) Minor amounts of silicates (non-crystalline silica), oxides, and/or glassy phases may be present in products but are considered low health risk by inhalation. These added to items above total 100 percent of product. (3) The percent compositions reflects the range that is possible within the group of analogous products shown in Section1. For further information, refer to remaining sections and/or the technical data sheet for the product. (4) If the product contains a vitreous fiber ingredient then additional information is presented in Section 11. (5) See ACGIH TLV Endonotes. (6) For quartz in a respirable fraction, the PEL is calculated by dividing 10 mg/m3 by the % SiO2=2. Divide the calculated quartz PEL in half to obtain the PEL for cristobalite or tridymite (respirable).

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
No unusual fire or spill hazard. Dusts may be irritating to skin, eyes and mucous membranes. Do not breathe vapors generated when product is first subjected to high temperatures during "burn in" for service.

Primary Route(s) of Entry for Particulate

Inhalation: Yes
Other: No
Skin: Yes
Ingestion: No
Potential Adverse Health Effects:
Acute-. Eye - Dusts of this product may be irritating.
Skin - Dusts of this product may cause, skin irritation.
Inhalation. - Dusts of this product may be irritating to respiratory tract.

Chronic: Eye: Dusts of this product may cause a reddening or swelling of the eye.
Skin: Dusts of this product may cause a skin rash (dermatitis).
Inhalation: Prolonged or repeated 113balation of dust of this product in excess of the stated PEL or TLV may cause lung injury (silicosis) or cancer.

Carcinogenicity
This product contains crystalline silica, which is a known human carcinogen as determined by the IARC (Group 1) and the NTP.
Signs and Symptoms of Overexposure:
Skin rash can result from handling. 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 dusts or vapors during heating, 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. If victim is conscious, moderate amounts of water or milk may be administered. 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
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: 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:
Product will not bum, but may generate hazardous combustion products (such as carbon monoxide or vapors of the constituents shown in Section 2) when subjected to fire conditions.

Flame Propagation or Burning Rate of Solid Material: Not Applicable

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

SECTION 6 - ACCIDENTAL RELEASE MEASURES

For brick products, spills are remedied by recovering and restocking 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 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 and away from sources of beat (furnaces, boilers, incinerators, etc.). 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 way be necessary to keep any air contaminants associated with this product within their TLV'S- This is particularly true if user operation generates dust, vapor, 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 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 or full-facepiece respirators 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, vapors, or mists associated with product. If clothing becomes contaminated, it should be laundered before wearing again. Barrier skin creams may be applied to parts of the body not otherwise protected, if workers find this beneficial. Maintain good personal hygiene. Wash hands thoroughly before eating or drinking.

SECTION 9 - PHYSICAL ANID CHEMICAL PROPERTIES

Appearance: Wet paste.
Vapor Pressure: Not Applicable
Odor: Slight earthy or sweet odor.
Vapor Density: Not Applicable
Water Solubility: Can be diluted with water.
PH: Not Determined
Density (H,0=1): 1.8-2.2
Boiling Point: Not Applicable
% Volatile (By Weight): < 25 % at 1800 F
Melting Point: Varies by product.
Other: Color varies by product, Wet mortars which have " (W) " in their product trade names contain a small addition of ethylene glycol (antifreeze). These products are also referred to as the 11 winterized" version of the standard product and this may appear in the product trade name.
SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:
This product is stable under normal and/or anticipated conditions for shipping, storage and installation.
Conditions to avoid: None
Incompatible Material:
May react with strong acids, such as hydrofluoric acid.
Hazardous Decomposition or Combustion Products: None
Hazardous Polymerization: Not Applicable

SECTION 11 - TOXICOLOGICAL INFORMATION

The International Agency for Research on Cancer (IARC) determined in 1997 that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1). "
Also, the National Toxicology Program (NTP) reported in 1991 that "silica, crystalline (respirable)" may reasonably be anticipated to be a carcinogen.
Silica (silicon dioxide-SI02) occurs in crystalline and non-crystalline (amorphous) forms. Quartz is the most common form of naturally occurring crystalline silica, but cristobalite and tridyrnite are also forms found in refractory products. Crystalline, silica has long been known to cause siticosis, a fibrotic lung disease- Particle size, concentration and duration of exposure are factors in determining the attack rate, latency period, incidence, rate of progression and outcome of this disease. A higher attack rate and severity of silicosis is seen where exposure is to cristobalite or tridyn3itv,. This is reflected in the
standards set by the American Conference of Governmental Industrial Hygienists (ACC;IH) for the Threshold Limit Value (TLV) for these materials. The TLV for quartz in a respirable fraction is 0. I mg/m3, while that for cristobalite and tridymite is 0.05 mg/m3. The Occupational Safety and Health Administration
(OSHA) has set their Permissible Exposure Limits (PEL) for quartz by the formula.- PEL= 10 / % quartz + 2 ing/tn3. And the FEL for cristobalite and tridymite will be one-half the value calculated for the quartz PFL.

LD50 LC50

Aluminum Silicate (Kvanite) No Data No Data
Calcined Bauxite No Data No Data
Aluminum Silicate (Mullite) No Data No Data
Clay No Data No Data
Silica, Quartz No Data No Data
Silica, Cristobalite No Data No Data

Silica, Fused No Data No Data
Sodium Silicate 1153 mg/kg (oral-rat) No Data
Alumina No Data No Data
Silica, Diatomaceous Earth No Data No Data
Sodium Hexametaphosphate 6200 mg/kg (ral-rats) No Data
Ethylene Glycol 4700 mg/kg (oral-rat) 1460 ppm (ihl-rat)
Water No Data No Data

Target Organs
Aluminum Silicate (Kyanite) Not Available
Calcined Bauxite Not Available
Aluminum Silicate (Mullite) Respiratory system.
Clay Not Available
Silica, Quartz Respiratory system, lungs and eyes.
Silica, Cristobalite Respiratory system and lungs.
Silica, Fused Respiratory system and lungs.
Sodium Silicate Eyes, skin and mucous membranes.
Alumina Respiratory system.
Silica, Diatomaceous Earth Respiratory system, lungs and eyes.
Sodium Hexarxietaphosphate Eyes, skin and respiratory system
Ethylene Glycol Eyes, skin, respiratory system and central nervous System,
Water Not Available

Long Term Toxicity
Aluminum Silicate (Kyanite) Not Available
Calcined Bauxite Not Available
Aluminum Silicate (Mullite) Not Available
Clay Not Available
Silica, Quartz Lung fibrosis or silicosis. Known human carcinogen (IARC).
Silica, Cristobalite Lung fibrosis or silicosis. Known human carcinogen (IARC).
Silica, Fused Possible human carcinogen
Sodium Silicate Not Available
Alumina Not Available
Silica, Diatomaceous Earth Not Available
Sodium Hexametaphosphate Not Available
Ethylene Glycol This chemical is a reproductive toxin to mammals. May cause pulmonary, kidney, and liver changes. Ingestion affects central nervous system.
Water Not Available

Short Term Toxicity
Aluminum Silicate (Kyanite) Not Available
Calcined Bauxite Not Available
Aluminum Silicate (Mullite) Not Available
Clay Not Available
Silica, Quartz Irritant to skin, eyes, lungs and mucous membranes
Silica, Cristobalite Irritant to skin, eyes and mucous membranes,
Silica, Fused Irritant to respiratory system and lungs by route of inhalation.
Sodium Silitate Poisonous if ingested. Caustic material which is a severe eye, skin and
Mucous membrane irritant.
Alumina Irritant to skin, eyes and mucous membranes.
Silica, Diatomaceous Earth Not Available
Sodium Hexametaphosphate: Mildly toxic if ingested.
Ethylene Glycol: Human poison by ingestion. Very toxic in particulate form if inhaled- Irritant to skin, eyes and raucous membranes.
Water: Not Available

Special Studies None

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 Ns 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. 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

Harbison-Walker Refractories Company considers this product to be hazardous as defined by the OSHA Hazardous Communication Standard (29 CPR 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)

Aluminum Silicate (Kyanite) 1302-76-7 1,2,3,4
Calcined Bauxite 1318-16-7
Aluminum Silicate (Mullite) 1302-93-8 1,2,3,4
Clay 1332-58-7 1,2,3,4
Silica, Quartz 14808-60-7 1,2,3,4
Silica, Cristobalite 14464-46-1 1,2,3,4
Silica, Fused 60676-86-0 1,2,3,4
Sodium Silicate 6834-92-0 3,4
Alumina 1344-28-1 1,2,3,4
Silica, Diatomaceous Earth 61790-53-2 1,2,3,4
Sodium Hexarnetaphosphate 10124-56-8 4
Ethylene Glycol 107-21-1 1,2,3,4
Water 7732-18-5 1,2,3,4

The lists are as Follows:
1. ACGIH TLV 'Threshold Limit Values" (1997)
2. OSHA Air Contaminants - Permissible Exposure Limits (1989)
3. Canadian Domestic Substances List
4. EPA TSCA Chemical Inventory List (1992)

WHMIS Hazard Class (Canada): D-2A
SARA TITLE III:
Section 302 Extremely Hazardous Substances: None
Section 311/312 Hazardous Categories: Irritant
Section 313 Toxic Chemicals: See Section 2

SECTION 16 OTHER INFORMATION

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