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MATERIALS SAFETY DATA SHEET

CeramSource, Inc.
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Prepared By: Technical Department
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Date: 1/1/14

Section 1 – Product Name

Common Name: Resin Bonded Magnesia-Carbon Brick (With Carbon Black)
Intended Use: Refractory Material
Product Name: INMC-14C

Section 2 – Composition and Information on Hazardous Ingredients

| Ingredient | CAS No. | % Weight | OSHA PEL | ACGIH TLV | Sec. 313 |
|-----------------|-----------|----------|-----------------------------------|-----------------------------------|----------|
| Magnesium Oxide | 1309-48-4 | 60-100 | 5 mg/m ³ (Resp Frac) | 10 mg/m ³ (As Fume) | No |
| Phenolic Resin | -- | 1-5 | Not Established | Not Established | No |
| Graphite | 7782-42-5 | 1-5 | 2.5 mg/m ³ (Resp Dust) | 2.0 mg/m ³ (Resp Dust) | 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.

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:

Inhalation: Yes **Other:** No
Skin: Yes **Ingestion:** No

Potential Adverse Health Effects:

Acute: Eye: Dust of this Product may be irritating.
Skin: Dust of this product may cause skin irritation.
Inhalation: Dust of this product may be irritating to respiratory tract.
Chronic: Eye: Dusts of this product may cause reddening or swelling of the eye.
Skin: Dusts of this product may cause a skin rash (dermatitis).
Inhalation: Prolonged or repeated inhalation of dusts of this product in excess of the stated PEL or TLV may cause lung disease (pneumoconiosis).

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: 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



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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 Measure

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: Product will not burn, 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 CFR 1910.1200): Not Flammable

Section 6 – Accidental Release Measures

For brick products, 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 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.



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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 or full face-piece respirators 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. 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 and Chemical Properties

Appearance: Brick shape/ Color Black

Odor: Resin Odor

Water solubility: Insoluble

Density (H₂O=1): 2.7-3.0

% Volatile (By Weight @ 1800°F): 7-22

Vapor Pressure: Not Applicable

Vapor Density: Not Applicable

pH: Not Determined

Boiling Point: Not Applicable

Melting Point: Greater than 2500° F

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. Avoid contact between product and strong oxidizers.

Hazardous Decomposition or Combustion Products: This product contains a synthetic resin which, upon application of heat, may release minute but detectable quantities of (1) toxic and irritating fumes including formaldehyde and ammonia, and/or (2) toxic gases such as the "monoaromatics" which include phenol and benzene. This situation is most likely to occur where conditions favor incomplete combustion and poor air handling practices are followed

Hazardous Polymerization: Not Applicable



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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 product in the range of 300-400 °F, removing most of the volatile fraction of the resin. In addition to the free phenol, the cured resin contains a trace of formaldehyde (less than 0.1 %). Incomplete Combustion Products: The phenolic resin binder may undergo incomplete combustion when temperature is applied to this product. The intent if this note is as follows: (1) to apprise the customer/user of the potential for incomplete combustion, and (2) to advise that the chemical compounds produced by incomplete combustion in combination of poor air handling practices may exceed TLV's (threshold limit values) for specific air contaminants. The specific chemical compounds which may be produced include but are not limited to: Carbon Monoxide, ammonia, methane, formaldehyde, monoaromatics including phenol, benzene, PAH's and BaP's.

| | LD ₅₀ | CD ₅₀ |
|---------------------------|---|------------------|
| Magnesium Oxide | No Data | No Data |
| Phenolic Resin | No Data | No Data |
| Graphite | 12,600 mg/kg (oral-rat) | No Data |
| Target Organs | | |
| Magnesium Oxide | Eyes and respiratory system. | |
| Phenolic Resin | No Data | |
| Graphite | Respiratory system and cardiovascular system. | |
| Long Term Toxicity | | |
| Magnesium Oxide | Not Available | |
| Phenolic Resin | Not Available | |
| Graphite | Not Available | |

| Short Term Toxicity | |
|----------------------------|---------------------------------------|
| Magnesium Oxide | Not Available |
| Phenolic Resin | Not Available |
| Graphite | Irritant to eyes and mucous membranes |

Section 12 – Ecotoxicological Information

Accident 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



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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

INTERSOURCEUSA, 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 Number | List (s) |
|-----------------|------------|----------|
| Magnesium Oxide | 1309-48-4 | 1,2,3,4 |
| Phenolic Resin | -- | |
| Graphite | 7782-42-5 | 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-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, CeramSource 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.