Essroc
Italcementi Group

3251 Bath Pike
Nazareth, PA 18064

MATERIAL SAFETY DATA SHEET

Section 1 - IDENTIFICATION

Product Name: Essroc Ground Slag

CAS Reg. No.: 65996-69-2

Chemical Name and Synonyms: Ground Granulated Blast Furnace Slag Cement, Ground Granulated Iron Blast Furnace Slag Cement, Blast Furnace Slag Cement, Iron Slag Cement, Pig Iron Slag Cement, Water Granulated Ground Blast Furnace Slag Cement

Trade Names: Essroc Ground Slag Grade 100, Essroc Ground Slag Grade 120

MSDS Information: This MSDS supersedes prior MSDS's for the products noted above. The term "Slag Cement", used in the text of this MSDS, refers to the above named products collectively.

Chemical Family: Non-metallic mineral composite.

Informational Phone Numbers: (800) 437-7762 Customer Service - Nazareth, PA
(800) 336-0366 Customer Service - Speed, IN
(800) 624-8986 Customer Service - Martinsburg, WV
(800) 386-2111 Customer Service - Mississauga, ONT

Emergency Contact Information: (800)-424-9300 Chemtrec

MSDS Prepared by: Essroc MSDS Development Committee - (610) 837-6725 – May 9, 2014

Section 2 - COMPONENTS

Hazardous Ingredients:

Component	CAS No.	OSHA PEL (8-hour TWA)	ACGIH TLV	Other Information
Granulated Blast Furnace Slag	65996-69-2	15 mg total dust/m^3 5 mg respirable dust/m^3	10 mg/m^3	IDLH: Not applicable LD_{50}: No Data
Crystalline Silica (< 0.4%)	14808-60-7	For mineral dusts containing crystalline silica: (10 mg respirable dust/m^3)/(%SiO_2 +2) (30 mg total dust/m^3) /(%SiO_2 + 2)	0.025 mg/m^3 respirable	IDLH: 50 mg/m^3 (twa) LD_{50}: ipr rat LD Lo 400 mg/kg
Titanium Oxide	13463-67-7	10 mg total dust/m^3 5 mg respirable dust/m^3	10 mg/m^3	IDLH: No Data LD_{50}: No Data

Notes: (1) Granulated blast furnace slag is a co-product of iron production composed primarily (95% or more) of a chemically bonded vitreous (glass like) mineral complex of the following constituents. Small quantities of these constituents may be present in crystalline or free form.

a. Calcium oxide 30-45%
b. Silicon dioxide 30-45%
c. Magnesium oxide 8-15%
d. Aluminum oxide 5-14%
e. Sulfur 0-3.5 %
f. Manganese oxide 0-1%
g. Potassium oxide 0-1%
h. Sodium oxide 0-1%
i. Titanium oxide 0-1.5%
j. Ferric (iron) oxide < 2.5%

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Slag Cement is a light colored powder that poses little immediate hazard. A single short-term exposure to the dry powder is not likely to cause serious harm. However, exposure of sufficient duration to wet Slag Cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third degree burns. The same type of tissue destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry Slag Cement.

POTENTIAL HEALTH EFFECTS

Relevant Routes of Exposure: Eye contact, skin contact, inhalation, and ingestion.

Effects resulting from eye contact: Eye contact by larger amounts of dry powder or splashes of wet Slag Cement may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid (see Section 4) and medical attention to prevent significant damage to the eye. Exposure to airborne dust may cause immediate or delayed irritation or inflammation.

Effects resulting from skin contact: Discomfort or pain cannot be relied upon to alert a person to hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet Slag Cement. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred.

Exposure to dry Slag Cement may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Dry Slag Cement contacting wet skin or exposure to moist or wet Slag Cement may cause more severe skin effects including thickening, cracking, or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

Some individuals may exhibit an allergic response upon exposure to Slag Cement, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may first experience this effect after years of contact with Slag Cement products.

Effects resulting from inhalation: Slag Cement may contain free crystalline silica. Prolonged exposure to airborne free crystalline silica may cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease, and/or other diseases. (also see “Carcinogenic potential” below.)

Inhalation may also aggravate other lung conditions. Exposure to Slag Cement may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.

Effects resulting from ingestion: Although ingestion of small quantities of Slag Cement is not known to be harmful, ill effects are possible especially if larger quantities are consumed. Slag Cement should not be eaten.

Carcinogenic potential: Slag Cement is not listed as a carcinogen by the National Toxicology Program (NTP), International Agency for Research (IARC) or the Occupational Safety and Health Administration (OSHA). However, Slag Cement may contain crystalline silica. Crystalline silica is classified by the IARC as a known human carcinogen. Slag Cement may contain slight quantities of titanium oxide in complexes with calcium oxides. Free titanium oxide has been classified by IARC as having “limited evidence of carcinogenicity in animals.”

Medical conditions which may be aggravated by inhalation or dermal exposure:

Pre-existing upper respiratory and lung diseases.

Unusual (hyper) sensitivity to hexavalent chromium (chromium^{+6}) salts.

Section 4 - FIRST AID

Eyes: Immediate flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes including under lids, to remove all particles. Call physician immediately.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent intended for use on skin. Seek medical treatment in all cases of prolonged exposure to wet cement, cement mixtures, liquids from fresh cement products, or prolonged wet skin exposure to dry cement.

Inhalation of Airborne Dust: Remove to fresh air. Seek medical help if coughing and other symptoms do not subside. ("Inhalation" of gross amounts of Slag Cement requires immediate medical attention.)

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

Section 5 - FIRE AND EXPLOSION DATA

Slag Cement is not combustible.

Flash Point:	Not applicable	Upper Explosive Limit:	Not applicable
Auto ignition temperature:	Not applicable	Lower Explosive Limit:	Not applicable
Auto ignition temperature:	Not applicable	Extinguishing media:	Not applicable
Hazardous combustion products:	Not applicable	Unusual fire and explosion hazards:	None
Special fire fighting procedures:	Slag Cement poses no fire-related hazards. Self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.		
Hazardous reactions:	Hydrogen sulfide (H_2S), a toxic gas, may be released when product is exposed directly to organic or inorganic acids in a low pH (<5) environment or when product is exposed to moist atmospheric environments rich in carbon dioxide (CO_2).		

Section 6 - ACCIDENTAL RELEASE MEASURES

Collect dry material using a scoop. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protective equipment as described in Section 8.

Scrape up wet material and place in appropriate container. Allow the material to "dry" before disposal. Do not attempt to wash Slag Cement down drains.

Dispose of waste material according to local, state, and federal regulations.

Section 7 - HANDLING AND STORAGE

Keep Slag Cement dry until used. Normal temperatures and pressures do not affect the material. Promptly remove dusty clothing or clothing which is wet with cement fluids and launder before reuse. Wash thoroughly after exposure to dust or wet cement mixtures or fluids.

Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Skin protection: Prevention is essential to avoid potentially severe skin injury. Avoid contact with unhardened (wet) Slag Cement products. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to unhardened Slag Cement products might occur, wear impervious clothing and gloves to eliminate skin contact. Where required, wear boots that are impervious to water to eliminate foot and ankle exposure.

Do not rely on barrier creams. Barrier creams should not be used in place of gloves.

Periodically wash areas contacted by dry Slag Cement or by wet cement or fluids with a pH neutral soap. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with wet cement, it should be removed and replaced with clean dry clothing.

Respiratory protection: Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits.

Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation.

Ventilation: Use local exhaust or general dilution ventilation to control exposure within applicable limits.

Eye protection: When engaged in activities where cement dust or wet cement could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with Slag Cement or fresh cement products.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Grey, tan, white powder	Odor:	No distinct odor
Physical state:	Solid (powder)	pH (in water):	12 to 13
Solubility in water:	Slightly soluble (0.1 to 1.0%)	Vapor pressure:	Not applicable
Vapor density:	Not applicable	Boiling point:	Not applicable (>1000^{O} C)
Melting point:	Not applicable	Specific gravity (H_2O=1.0):	2.80 - 3.00
Evaporation Rate:	Not applicable	Coefficient of oil to water distribution:	Not applicable

Section 10 - STABILITY AND REACTIVITY

Stability: Stable

Conditions to avoid: Unintentional contact with water.

Incompatibility: Wet Slag Cement is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal.

Hazardous decomposition: Will not spontaneously occur. Adding water results in hydration and produces (caustic) calcium hydroxide.

Hazardous polymerization: Will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

Route of Entry.....Section 3
Effects of acute exposure to product.....Section 3
Effects of chronic exposure to product.....Section 3
Exposure Limits.....Section 2
Irritancy of product.....Section 3
Sensitization to product .....Section 3
Carcinogenicity.....Section 3
Reproductive Toxicity.....Not Applicable
Teratogenicity.....Not Applicable
Mutagenicity.....Not Applicable
Toxicologically synergistic products.....Section 3, Section 16

For a description of available, more detailed toxicological information, call one of the informational phone numbers listed at the end of Section 1.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity: No recognized unusual toxicity to plants or animals.

Relevant physical and chemical properties: See sections 9 and 10.

Section 13 - DISPOSAL

Dispose of waste material according to local, state, and federal regulations. (Since Slag Cement is stable, uncontaminated material may be saved for future use.)

Dispose of bags in an approved landfill or incinerator.

Section 14 - TRANSPORTATION DATA

Hazardous materials description/proper shipping name: Slag Cement is not hazardous under U.S. Department of Transportation (DOT) regulations.

Hazard class: Not applicable.

Identification number: Not applicable

Required label text: Not applicable.

Hazardous substances/reportable quantities (RQ): Not applicable

Section 15 - OTHER REGULATORY INFORMATION

Status under USDOL-OSHA & MSHA Hazard Communication Standards (29CFR 1910.1200 & 30CFR Part 47): Slag Cement is considered a "hazardous chemical" under these regulations, and should be part of any hazard communication program.

Status under CERCLA/Superfund, 40 CFR 117 and 302: Not Listed

Hazard Category under SARA TITLE III, Sections 311- 312: Slag Cement qualifies as a "hazardous substance" with immediate and delayed health effects.

Status under SARA Title III, Section 313: This product contains NONE of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 in concentrations above deminimis levels.

Toxic Substance Control Act (TSCA): All major components of Slag Cement are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act: Slag Cement is a "hazardous substance" subject to statutes promulgated under the subject act.

Status under Canadian Environmental Protection Act: Not listed.

Status under WHMIS: Slag Cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class E - Corrosive material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

SECTION 16 - OTHER INFORMATION

Abbreviations:

ACGIH	American Conference of Government Industrial Hygienists
ASTM	American Society of Testing Materials
CAS	Chemical Abstract Service
CFR	Code of Federal Regulations
DOT	Department of Transportation
IARC	International Agency for Research
IDLH	Immediately dangerous to life and health (NIOSH).
m^3	cubic meter
mg	Milligram
mm	millimeter
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicity Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RQ	Reportable Quantities
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TWA	Time Weighted Average
URT	Upper Respiratory Tract
WHMIS	Workplace Hazardous Material Information System

Other important information:

Slag Cement should only be used by knowledgeable persons. A key to using the product safely requires the user to recognize that Slag Cement chemically reacts with water, and that some of the intermediate products of this reaction (that is, those present while Slag Cement is “setting”) pose a far more severe hazard than does Slag Cement itself.

While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of Slag Cement as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product.

In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with Slag Cement to produce Slag Cement products. Users should review other relevant material safety data sheets before working with this Slag Cement or working on Slag Cement products, for example, Slag Cement concrete.

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