SAFETY DATA SHEET

MATERIAL: COLD FUSION CONCRETE™

GEOPOLYMER SOLUTIONS, LLC

Section 1- Product Identification

Product Identifier

Product Name: COLD FUSION CONCRETE™
Product Codes: This SDS covers several products. Individual constituents will vary. A100, A200, A300, A400, A500, A700, SL200, WW200, ST200, A1M Mortar, FP215, FP225, FP240, FP250, Soil Stabilization.
Synonyms: Geopolymer, Alkali-Activated Slag Cement, Alkali-Activated Fly Ash Cement
Product Form: Solid / powder or granular
Intended Use of Product: Cold Fusion Concrete (CFC™) is used in-place of ordinary Portland cement. It is mixed with Slag Cement, or Fly Ash in combination with water and aggregates to form concrete. It is also used as a component of other building and construction materials, liners, and spray applied protectants.

Name, Address and Telephone of Responsible Party

Geopolymer Solutions, LLC
11200 Cox Road, Suite A1
Conroe, Texas 77385
(281) 419-1866

Emergency Contact Information:

REBECCA FERGUSON: (970) 846-2293
RODNEY ZUBROD (505)609-3474

Section 2 - Hazards Identification

Classification of the Substance or Mixture

Classification (GHS-US)

Eye Damage 1
Skin Corrosion 1B
Specific Target Organ Toxicity: Repeat Exposure 1
Carcinogen A

Label Elements

Hazard Pictograms

Signal Word **Danger**

Hazard Statements

Causes severe skin burns and eye damage
May cause cancer (lungs).
Causes damage to organs (lungs) through prolonged or repeated exposure.

Precautionary Statements

Prevention Do not breathe dust. Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection
Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not handle until all safety precautions have been read and understood.

Response **If inhaled:** Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a doctor.

If on skin: Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse.
If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center/doctor.
Storage Disposal: Store locked up. Dispose of contents/container in accordance with local/state/national or international regulations.

Section 3 – Composition/Information on Ingredients

Component/Ingredient	CAS #	Percent Present (Range)
Slags, ferrous metals, blast furnace	65996-69-2	35-45
Sodium Metasilicate	6834-92-0	10-20
Sodium Tetraborate Pentahydrate	12179-04-3	5-15
SODIUM poly[(NAPHTHALENEFORMALDEHYDE) SULFONATE]	9084-06-4	<0.1
Magnesium Oxide	1309-48-4	<0.1
Fly Ash		35-45
Crystalline Silica (Quartz)	14808-60-7	0.1- < 1
Silica Dioxide (Amorphous)	7631-86-9	55-65
Aluminum Oxide	1344-28-1	20-25
Iron Oxide	1309-37-1	3-7
Calcium Oxide	1305-78-8	5-12
Magnesium Oxide	1309-48-4	< 1
Titanium Oxide	13463-67-7	< 1
Carbon	7440-44-0	< 1-5
Nuisance Dusts (Particulates not otherwise regulated)	None	< 1-5
Proprietary	None	<1
Proprietary	None	<1-3

Other Components:
The majority of components in Cold Fusion Concrete cement are various Alkali Silicates and glassy Metallic Silicates (Iron, Calcium, Sodium, Magnesium, Aluminum, and Titanium Silicates). It contains some proprietary materials that are safe for human consumption. Dependent upon the Produce Code will contain various types of filler aggregates and minerals including perlite, pumice, quartz, marble, vermiculite, expanded polystyrene, and other materials that are not soluble, toxic, or hazardouse. It may contain trace quantities of other hazardous materials, including trace amounts of crystalline silica. Crystalline silica has been classified by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) as a known human carcinogen.

Section 4 – First Aid Measures

Description of First Aid Measures

Eyes Rinse eyes and under lids cautiously with clean water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

Skin Remove contaminated clothing. Wash with plenty of water. If skin irritation occurs, get immediate medical advice/attention.

Inhalation Remove person to fresh air away from dust and keep comfortable for breathing. If coughing persists, obtain medical attention.

Ingestion Do not induce vomiting. If subject is conscious, rinse the mouth with water to remove any material and drink plenty of water to dilute any swallowed material. Do not give drink or attempt to force water to an unconscious person. Get medical advice/attention.

Important Symptoms and Effects (Acute and Delayed)

Eyes Causes serious eye irritation and may scratch eye surface due to particle abrasion. May cause chemical burns resulting in corneal damage.

Skin Causes skin irritation if exposed to moisture on skin creating redness, dryness and itching. Extended exposure to wet material will result in chemical burns to skin, possibly severe.

Inhalation May irritate nose and throat if dust is inhaled. Prolonged or repeated inhalation of reparable dust may lead to respiratory tract or lung damage.

Ingestion May cause irritation and burns of mouth, throat, stomach and digestive tract if swallowed.

Recommendations for Immediate Medical Care or Special Treatment

Seek immediate medical attention for inhalation of large quantities of dust or exposure of wet material over large areas of skin. Seek immediate medical attention if material comes into contact with eyes and cannot be immediately removed.

Section 5 – Fire Fighting Measure

General Fire Hazards	None. Material is not considered flammable or combustible.
Extinguishing Media	Use water or water spray to extinguish any fires involving this material.
Extinguishing Media to Avoid	None.
Hazards of Combustion	None.
Fire Fighting Recommendations	Firefighters should always wear full protective gear to fight any fire. Refer to Section 9 for flammability information.

Section 6 – Accidental Release Measures

Precautions	Avoid creating dust. Prevent material from entering sewers, drains, ditches or waterways.
Personal Protection	Wear respiratory protection and protective eyewear/clothing to avoid eye or skin contact.
Emergency Procedures	Ventilate area and avoid creating dust. Remove unnecessary persons from area.
Containment	Barricade solid material to prevent additional spillage.
Procedures Clean Up Procedures	Scoop or vacuum up spilled material while avoiding dust creation. Scoop up wet material and place in approved container. Allow wet material to harden before disposal.

Section 7 – Handling and Storage

Safe Handling Practices

Avoid contact with skin or eyes. Avoid breathing dust. Use only in well ventilated areas. Wear appropriate personal protective equipment to prevent eye or skin contact and use respiratory protection equipment if dusty or in poorly ventilated areas.

Safe Storage Measures

Store in well-ventilated areas away from moisture and incompatible materials. If stored in containers, keep containers closed when not in use.

Incompatible Materials

Water/moisture exposure will cause material to generate heat. Keep away from aluminum metal, strong acids and oxidizers. May release hydrogen sulfide gas when dry and exposed to acids. Can react with water to form calcium hydroxide.

Section 8 – Exposure Controls & Personal Protection

INDIVIDUAL COMPONENTS EXPOSURE LIMITS **(T=Total Resparable, R=Resparable Fraction, I=Inhalable-aerosol)**

Component	OSHA PEL	ACGIH TLV	NIOSH REL
Slags, ferrous metals, blast furnace	Not Established	Not Established	Not Established
Sodium Metasilicate	50 mppcf or 15 mg/m3 (T) 15 mppcf or 5 mg/m3 (R)	10 mg/m3 (I) 3 mg/m3 (R)	Not Established
Sodium Tetraborate Pentahydrate	10 mg/m3	Not Established	1 mg/m3
Fly Ash			
Crystaline Silica	10 mg/m3 (R) / (%SiO2 + 2) 30 mg/m3 (T) / (% SiO2 +2)	0.025 mg/m3 (R)	0.05 mg/m3 (R)
Silica Dioxide (Amorphous)	80 mg/m3/(%SiO2)	None	6 mg/m3
Aluminum Oxide	15 mg/m3 (T) 5 mg/m3 (R) (as Al)	1 mg/m3 (R) (as Al metal & insoluble comounds)	Not Established
Iron Oxide	10 mg/m3 (as fume)	5 mg/m3 (R)	5 mg/m3 (dust/fume as fe)
Calcium Oxide	5 mg/m3 (R) (as Al)	2 mg/m3	2 mg/m3
Magnesium Oxide	15 mg/m3 (T)	10 mg/m3 (I)	Not Established
Titanium Oxide	15 mg/m3 (T)	10 mg/m3 (T)	Not Established
Carbon	15 mg/m3 (T); 5 mg/m3 (R)	Not Established	Not Established
Nuisance Dusts (Particulates not otherwise regulated)	15 mg/m3 (T); 5 mg/m3 (R)	10 mg/m3	Not Established
Proprietary	None	None	None
Proprietary	None	None	None

Exposure Controls

Engineering Controls

Use outdoors in well-ventilated areas; otherwise employ natural or mechanical ventilation to maintain exposure within applicable limits.

Personal Protection

Face and Eyes

Avoid contact with skin or eyes. Avoid creating or breathing dust.
Safety glasses with side shields or protective goggles should be worn while using this product. For extremely dusty conditions, non-vented goggles or goggles with indirect venting are recommended. Avoid contact lens wear when using this product.

Body Respiratory

Long sleeved shirts and trousers should be worn while using this material. Wear water-proof boots. If working in dusty conditions, impervious over garments are recommended.
If exposure levels cannot be maintained below acceptable limits, suitable particulate-filtering facemasks or respirators approved by MSHA/NIOSH should be worn in accordance with the user's respiratory protection program and OSHA/MSHA guidelines.

Hands

Protective gloves with wrist/arm cuffs should be worn to avoid direct contact with skin.

Section 9 – Physical and Chemical Properties

Physical State	Solid, granules or powder	**Specific Gravity**	2.85-3.10
Appearance & Color	Tan/off-white powder	**Flash Point/Method**	None. Not flammable.
Odor	None	**Auto Ignition Temperature**	Not determined
pH	>9 • 12	**Lower Flammability Limit**	Not applicable
Boiling Point	Not applicable	**Upper Flammability Limit**	Not applicable
Solubility (Water}	92% (Hygroscopic)	**Octanol/HZO Coefficient**	Not determined
Evaporation Rate	Not applicable	**Viscosity**	Not applicable
Melting Point	Not determined	**Freezing Point**	Solid at room temperature
Vapor Density	Not applicable	**Explosion Risk: Static**	Not considered a hazard
Vapor Pressure	Not applicable	**Explosion Risk: Shock**	Not considered a hazard

Section 10 – Stability and Reactivity

Reactivity Chemical

Vigorous to violent reaction with acids when in dry state.

Stability

Stable at standard temperature and pressures.

Hazardous Reactions

Vigorous to violent reaction with acids when in dry state.

Conditions to Avoid

Gases may be released if exposed to acids. Material readily absorbs water.

Incompatible Materials

Avoid contact with strong acids, oxidizers, aluminum metal and ammonium salts.

Decomposition Hazards

May release hydrogen sulfide gas when dry and exposed to acids.

Section 11-Toxicological Information

Product: COLD FUSION CONCRETE

Acute Toxicity Not classified.

LDSO/LCSO Data

Component 12179-04-3:

Acute Toxicity

Acute oral toxicity: LD50 (rat): 3,305 mg/kg

Acute inhalation toxicity: LC50 (rate): > 2 mg/l

Assessment: The component/mixture is low toxic after short term inhalation.

Acute dermal toxicity: LD50 (rabbit): > 2,000 mg/kg

Remarks: No data available.

Skin corrosion/irritation

Species: Rabbit

Result: Mild skin irritation

Serious eye damage/eye irritation

Remarks: Risk of serious damage to eyes

Species: Rabbit

Result: Risk of serious damage to eyes

Respiratory or skin sensitization

Test Type: Maximization test

Species: Guinea pig

Result: Did not cause sensitization

Germ cell mutagenicity

Genotoxicity in vitro: Ames Test Salmonella typhimurium – Negative

Carcinogenicity

No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Presumed human reproductive toxicant

Skin Corrosion/Irritation Causes skin irritation if exposed to moisture on skin.

Critical Eye Damage/Irritation Causes irritation or chemical burns if exposed to moisture on skin. Causes serious eye injury due to chemical burns or mechanical irritation.

Respiratory or Skin Sensitization Not reported/no data available.

Germ Cell Mutagenlclty Not reported/no data available.

Teratogenicity Not reported/no data available.

Carcinogenicity Material contains trace amounts of crystalline silica, which may cause lung cancer through repeated or prolonged exposure to dust.

Specific Organ Toxicity (Single Exposure) Not reported/no data available.

Specific Organ Toxicity (Repeated Exposure) May cause damage/disease to lungs through repeated or prolonged exposure.

Reproductive Toxicity Not reported/no data available.

Aspiration Respiratory Not reported/no data available.

HazardSymptoms: Inhalation Coughing, sneezing, mucous discharge and dyspnea. Extended and short term contact may lead to chemical burns.

Symptoms: Skin Contact Redness, itching, chemical burns.

Symptoms: Eye Contact Redness, itching, contact may lead to corneal abrasion/ulceration.

Symptoms: Ingestion Irritation and chemical burns of mouth and throat.

Other Toxicological Information No additional data available.

Section 12 - Ecological Information

General Ecotoxicity	Harmful to aquatic life at low concentrations. Toxicity is primarily associated with pH.
Persistence Degradability	This material is not considered to be biodegradable.
Bioaccumulation Potential	Not reported/no data available.
Mobility in Soil to Groundwater Environmental Fate	Not reported/no data available.
	Not reported/no data available.
	Not reported/no data available.
Other Environmental Precautions or Information	Avoid release to the environment. Prevent material from entering sewers, drains, ditches or waterways.

Section 13 - Disposal Considerations

Disposal Methods	Dispose of waste material in accordance with applicable federal, state, and local regulations.
Special Considerations	Avoid creation or breathing dust during disposal. Avoid contact with skin and eyes.
Other Disposal Information	Prevent material from entering sewers, drains, ditches or waterways.

Section 14 - Transport Information

Proper Shipping Name	N/A - not regulated.
Hazard Class	N/A - not regulated.
UN Shipping ID Number	N/A - not regulated.
Packing Group	N/A - not regulated.
Envlronmental/IMDG Codes	N/A - not regulated.

Section 15 – Regulatory Information

Federal

This product contains one or more chemical components or ingredients that may require identification and/or reporting under SARA Section 302, SARA Section 311/312/313, CERCLA and/or TSCA. An examination of the components of this product should be conducted by a qualified environmental professional to determine if such identification or reporting is required by federal law.

- Components: Silica (Crystalline)

State

This product contains one or more chemical components or ingredients that are included or listed on the hazardous substances lists for one or more of the following states: California, Maine, Minnesota, New Jersey, Pennsylvania and Rhode Island. An examination of the components of this product should be conducted by a qualified environmental or safety and health professional to determine the specific requirements for those states.

- Components: Silica (Crystalline)

The state of California requires the following statement (Proposition 65) in regards to this material:

- WARNING! This product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Section 16 – Other Information

Date of last revision: June 6, 2018 Prepared and reviewed by: Geopolymer Solutions, LLC

Additional information regarding cementitious materials:

Wet Portland Cement, wet Cold Fusion Concrete/ Cement and other wet cementitious materials can cause caustic burns to unprotected skin, sometimes referred to as cement burns. Cement burns may result in blisters, dead or hardened skin, or black or green skin. In severe cases, these burns may extend to the bone and cause disfiguring scars or disability.

Employees cannot rely on pain or discomfort to alert them to cement burns because cement burns may not cause immediate pain or discomfort. By the time an employee becomes aware of a cement burn, much damage has already been done. Accordingly, the safest method to use Cold Fusion Concrete/Cement is to avoid contact with exposed skin completely. Cement burns can get worse even after skin contact with cement has ended. Any employee experiencing a cement burn is advised to see a health care professional immediately.

Skin contact with wet cementitious material can also cause inflammation of the ski n, ref erred to as dermatitis. Signs and symptoms of dermatitis can include itching, redness, swelling, blisters, scaling, and other changes in the normal condition of the skin. Contact with wet cementitious materials can cause a non-allergic form of dermatitis (called irritant contact dermatitis) which is related to the caustic, abrasive, and drying properties of cement.

Employees who work with wet cementitious materials and experience skin problems, including seemingly minor ones, are advised to see a health care professional for evaluation and treatment. In cement-related dermatitis, early diagnosis and treatment can help prevent chronic skin problems.

Additional information regarding crystalline silica:

The major concern is silicosis, caused by the inhalation and retention of respirable (extremely small) crystalline silica dust particles. Silicosis can exist in several forms. Chronic or ordinary silicosis (often referred to as simple silicosis) is the most common form of silicosis, and can occur after many years of exposure to relatively low concentrations of airborne resparable crystalline silica dust. Complicated silicosis or progressive massive fibrosis (PMF) may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease. Acute silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis can be fatal.

IARC: The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group I).11 The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs."

NTP: The National Toxicology Program (NTP), in its Thirteenth Annual Report on Carcinogens, classified "silica, crystalline (respirable)" as a known human carcinogen.

OSHA: Crystalline silica (quartz) is not regulated as a human carcinogen by the Occupational Safety and Health Administration.

Other important information:

While the information provided in this document is believed to provide a useful summary of the hazards of Cold Fusion Concrete/Cement, the information in this document 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.

The data furnished in this document do not address hazards that may be posed by other materials when mixed with COLD FUSION CONCRETE. Users should review other relevant safety data sheets before working with this product.

The information presented in the Safety Data Sheet is based on current knowledge and publications and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be interpreted as guaranteeing any specific property of the product.

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