



siplast

MSDS



MATERIAL SAFETY DATA SHEET

HMIS
 H = 1
 F = 0
 R = 0
 PPE = See Section 8

Section I

Manufacturer: Siplast, an Icopal Group Company
 (800) 643-1591 or (800) 922-8800

Address: 1000 E. Rochelle Blvd., Irving, TX 75062

Emergency Phone No.: CHEMTREC, (800) 424-9300 (U.S.), (703) 527-3887 (outside of U.S.)

Product Class: Lightweight Concrete Decks

Trade Name: Insulcel[®]-PB Liquid Concentrate

Chemical Names and Family: Hydrolysed Polypeptide Condensate

Product Use: Protein Based Concentrate for Cellular-Concrete Foam

CAS # (Chemical Abstract Service): Proprietary

Transportation Hazard Classification United States DOT

Proper Shipping Name: Not applicable
 Hazard Class: Nonhazardous
 Identification #: Not applicable
 Label(s) Required: None
 Surface Freight Classification: Cellular concrete foam concentrate

Section II - Ingredients

INGREDIENT	EXPOSURE LIMITS	
	OSHA PEL	ACGIH TLV
Hexylene glycol CAS # 107-41-5	Not available	121 mg/m ³ - Ceiling Value 25 ppm - Ceiling Value
Peptide condensate CAS # Proprietary	Not available	Not available

INGREDIENT: (Chemical Name, CAS #, & Common Name)	% BY WT.	TOXICITY DATA: LD ₅₀ & LC ₅₀
Polypeptide - alkylene polyol condensate CAS # Proprietary	90-100	No toxicity data available
Hexylene glycol (2-Methyl-2, 4-pentanediol) CAS # 107-41-5	10% Max	Oral Rat. LD ₅₀ = 3,700 mg/kg Oral Rbt. LD ₅₀ = 8,760 mg/kg

Section III - Physical Data

Boiling Point: > 100°C (212°F)
Evaporation Rate (Butyl Acetate = 1): < 1
% Volatile by Volume: Unknown
Vapor Pressure (mm Hg.): < 0.05
Vapor Density (AIR =1): Unknown
Solubility in Water: Complete
Bulk Density (lb./cu. ft): 75
Appearance and Odor: Dark brown liquid with pungent odor.
Odor Threshold: Not determined
pH: 6 - 7.5
Specific Gravity (H₂O=1): Approx. 1.2

Section IV - Fire and Explosion Data

Flash Point: Not applicable
Method Used: Not applicable
Flammable Limits: LEL: Not applicable
UEL: Not applicable
N.F.P.A. Rating: H-1, F-0, R-0
Extinguishing Media: Product is noncombustible. However, in case of fire, keep containers cool by spraying or flooding with water.
Special Procedures: None
Unusual Hazards: None

Section V - Health Hazard Data

Routes of Exposure:

INHALATION: This product is not expected to generate vapors due to its low vapor pressure. Exposure by inhalation is therefore not expected to be a concern.
SKIN AND EYES: Eye contact with liquid may cause slight reversible irritation. Skin contact with liquid may result in mild to moderate irritation. Repeated skin contact may cause drying of skin.
INGESTION: May be slightly toxic if swallowed causing nausea and vomiting. Hexylene glycol present at 10% by weight or less is a known anesthetic and may cause signs of excitement followed by profound depression if ingested. No long-term (chronic) effects are known to occur from accidental ingestion of this product.
Carcinogenicity According to NTP, IARC and OSHA: Not applicable

Section VI - Reactivity Data

Stability: Stable X Unstable _____
Conditions to Avoid: None known
Hazardous Decomposition or Byproducts: Carbon dioxide, carbon monoxide, alkenes and alkanes.
Hazardous Polymerization: May occur ____ Will not occur X
Conditions to Avoid: Not applicable

Section VII - Spill & Disposal Information - U.S. Only

If spilled, absorb with an inert, noncombustible material such as sand, vermiculite or soil and remove to containers for disposal.

Prevent liquid from entering sewers, waterways or low areas by diking flow of spill. Product is biodegradable but will cause foaming in water.

Product is not considered a hazardous waste by the U.S. EPA. Check with local and state agencies to determine if their regulations differ. Dispose of all waste in accordance with applicable regulations.

Section VIII - Special Protection Information

Warning Statements:

CAUTION! MAY CAUSE SLIGHT IRRITATION

Liquid contact with eye or skin may cause slight irritation.

Contains Hydrolysed peptide condensate (CAS # Proprietary) with hexylene glycol (CAS # 107-41-5).

Precautionary Measures:

Avoid contact with eyes, skin and clothing.
Do not consume food, drink or tobacco in areas where they may become contaminated with this product.

Wash thoroughly after handling.

Keep container tightly closed.

Respiratory Protection:

Not generally required.

**Trade Name: Insulcel®-PB Liquid Concentrate
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Ventilation:

Local Exhaust: Not generally required.

Mechanical: If used indoors, adequate building ventilation should be provided.

Special: Not applicable

Other: Not applicable

Skin Protection: Impervious rubber or synthetic rubber gloves are recommended when handling this product to prevent skin contact with liquid.

Eye Protection: Safety glasses with side shields are recommended to avoid eye contact. If gloves come into contact with liquid, avoid hand-to-eye movement to prevent secondary eye contact.

Other Protective Clothing or Equipment: Appropriate work clothes and boots.

Work/Hygienic Practices:

Use good personal hygiene and perform regular housekeeping at jobsite.

**Section IX - Emergency and First Aid
Procedures**

EYES: In case of eye contact, flush eyes with plenty of fresh, running water holding eyelids apart. If irritation persists, consult a physician.

SKIN: If skin contact occurs, promptly flush exposed area with plenty of water. Wash thoroughly with soap and water after handling. If irritation occurs and persists, consult a physician.

SWALLOWED: Give two glasses of water to drink and induce vomiting by sticking finger down throat. Call a physician. Never give anything by mouth to an unconscious person.

**Section X - Government Reporting
Information - U.S. Only**

SARA Title III Reporting Information:

Tier I & II Hazard Categories: Not applicable

Contains Extremely Hazardous - SARA III Section 302 Ingredient: No

Contains Toxic Chemical Release - SARA III Section 313 Ingredient: No

Other Government Reporting Requirements: None required.

Non-hazardous Ingredient Disclosure: Not applicable.

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Product Class: Lightweight Concrete Decks

Trade Name: NVS[®] Concrete Aggregate & ZIC

Chemical Names and Family: Expanded Vermiculite and Quartz (Sand)
 Expanded Vermiculite Magnesium-Alumino-silicate Mineral

Product Use: Concrete Aggregate

Formula: Blend of Vermiculite and Sand

CAS # (Chemical Abstract Service): NVS Concrete Aggregate - Mixture-Not applicable
 ZIC - 01318-00-9

Transportation Hazard Classification United States DOT

Proper Shipping Name: Not applicable
 UN/NA Number: Not applicable
 Domestic Hazard Class: Nonhazardous
 Label/Placard Required: Not applicable
 Surface Freight Classification: Vermiculite, other thin vermiculite

Section II - Ingredients

INGREDIENT	PERCENT (MAX)	EXPOSURE LIMITS	
		OSHA PEL	ACGIH TLV
Quartz CAS # 14808-60-7	1-60	TWA: 0.1 mg/m ³ respirable dust	TWA: 0.05 mg/m ³ (respirable fraction)
Vermiculite CAS # 001318-00-9	50 - 100	Not Available	Not Available

NOTE: See additional information in Work Hygienic Practices Section of the MSDS for additional information concerning Quartz.

In addition to the exposure limits referenced above, the following non-specific limits for dust apply to this product: OSHA, 15 mg/m³-TWA or Total Dust and 5 mg/mg³ as Respirable Dust, ACGIH, 10 mg/m³-TWA as Total dust and 3 mg/m³-TWA as Respirable Dust.

Section III - Physical Data

Boiling Point: Not applicable
 Evaporation Rate (Butyl Acetate = 1): Not applicable
 % Volatiles (gr/L): (70°F) (21°C) Not available
 Vapor Pressure (mm Hg.): Unknown
 Vapor Density (AIR =1): Unknown
 Solubility in Water: Negligible
 Bulk Density (lb./cu. ft): 4-10 PCF

Appearance and Odor: Brown or gray free flowing aggregate.
 Odor Threshold: None determined
 pH: Not applicable
 Specific Gravity (H₂O=1): Not applicable
 Physical State: Solid
 Viscosity: Not Applicable

Section IV - Fire and Explosion Data

Flash Point: Not applicable
Flash Point Method: Not applicable
Flammable Limits: LEL: Not available
UEL: Not available
Auto-Ignition Temperature: Not available
Extinguishing Media: Not applicable. Product will not burn.
Special Procedures: None
Unusual Hazards: None known

Section V - Health Hazard Data

Emergency Overview: **Caution!**

Causes eye irritation.
Caused respiratory tract irritation.
Avoid contact with eyes.

Potential Health Effects:

INHALATION: Causes respiratory tract irritation.
Effects include: Coughing, shortness of breath, wheezing and reduced pulmonary function from pneumoconiosis (dusty lungs).

EYE CONTACT: Eye contact causes physical irritation. Prolonged eye contact can result in redness and itching.

SKIN CONTACT: Skin contact is not expected to cause any harmful effects.

SKIN ABSORPTION: Not expected to be harmful if absorbed through the skin.

INGESTION: Ingestion is expected to be harmful. Effects include: No other effects expected unless listed below.

Carcinogenicity:

Quartz: NTP: Known: Yes Suspect: Yes
IARC: Group 1 - Yes Group 2A & 2B - No
OSHA: Yes

Vermiculite: NTP: No
IARC: No
OSHA: No

Prolonged exposure to respirable crystalline silica (Quartz) has been associated with a lung cancer health risk in humans. See information in work hygienic practices section concerning quartz.

Mutagenicity: Not applicable
Teratogenicity: Not applicable
Reproductive Toxicity: Not applicable

Section VI - Reactivity Data

Stability: Stable X Unstable _____
Conditions to Avoid: Vermiculite is often used as a chemical absorbent. When contact with highly reactive chemicals or chemicals that can off-gas at temperatures above room temperature (such as Hydrogen peroxide solutions), care should be taken to neutralize or make these materials inert prior to absorption. If possible, consult the MSDS or supplier of the material being absorbed.
Hazardous Decomposition or Byproducts: None Known
Hazardous Polymerization: May occur ____ Will not occur X

Section VII - Spill & Disposal Information - U.S. Only

Spills/Leaks:

Carefully shovel or sweep up material and place in suitable container for recycle or disposal. Dampen with water spray or use other methods to clean spill, which avoid creating dust. Dampen empty packaging promptly. Avoid excessive handling of empty packaging, which may result in unnecessary release of airborne particulates. Use proper personal protective equipment.

Handling & Storage:

Precautionary Measures

Avoid contact with eyes, skin, and clothing.
Avoid creating and inhaling airborne dust or particulates.
Use only with adequate ventilation.
Wash clothing before reuse.
Equip mixers with dust covers.
Provide respiratory protection if needed.
FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Waste Disposal Procedures: Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations. According to US EPA (40 CFR § 261.3) waste of this product is not defined as hazardous.

Section VIII - Special Protection Information

Personal Protective Equipment:

Respiratory Protection: Respiratory protection may be desirable if dust is created in handling and is required at or above the Permissible Exposure Limit (PEL) for nuisance particulates.

Skin Protection: Gloves are recommended.

Eye Protection: Safety glasses or goggles should be worn.

Work/Hygienic Practices: Use good personal hygiene practices.

Grace has not been able to detect respirable sized quartz in vermiculite above the current Permissible Exposure Limit (PEL) during industrial hygiene sampling of workers at Grace production facilities. We believe that the highest potential for exposure exists at our production facilities due to the high volume of product produced and handled. In addition, a wet sieving analysis combined with x-ray diffractometry has been conducted on vermiculite. Results indicate that respirable quartz is not present above 0.1% by weight limit established by the Occupational Safety and Health Administration (OSHA) for carcinogens. OSHA states that if the hazardous substance is contained in the product below 0.1% by weight and exposures do not exceed permissible exposure limits, then the hazards do not apply.

Quartz (Crystalline silica) is a naturally-occurring mineral that is commonly contained in materials that are mined from the earth's surface such as sand, limestone, clay, and gypsum (Calcium sulfate). Total quartz is a value usually representing the combined fractions of large, non-respirable sized particles and of respirable sized particles (less than ten microns in aerodynamic diameter). It is only the respirable fraction of total quartz that is recognized as hazardous by professionals in the field of Occupational Health and by most regulatory agencies. This product contains compounds subject to exposure guidelines and/or identified as carcinogens. However, due to the physical nature of this product, these compounds are unlikely to reach exposure limits.

Engineering Controls: General ventilation may be desirable and should be used where appropriate.

Section IX - Emergency and First Aid Procedures

EYES: Flush eyes with water for at least 15 minutes while holding eyelids open. If discomfort persists, consult a physician.

SKIN CONTACT: Wash with soap and water. If discomfort or irritation persists, consult a physician. Remove contaminated clothing and wash before reuse.

INGESTION: Adverse health effects are not expected if swallowed.

INHALATION: If symptoms develop, get fresh air. If symptoms persist, consult a physician. If breathing has stopped, give artificial respiration then oxygen if needed.

Section X - Government Reporting Information - U.S. Only

Regulatory Chemical Lists:

CERCLA (Comprehensive Response Compensation and Liability Act): None present unless listed below)

SARA Title III (Superfund Amendments and Reauthorization Act):

SARA Section 312/Tier I & II Hazard Categories.

Health Immediate (acute)	No
Health Delayed (chronic)	No
Flammable	No
Reactive	No
Pressure	No

302 Reportable Ingredients (Identification Threshold 1%): None

313 Reportable Ingredients (Chemicals present below report threshold are exempt): None

National Volatile Organic Compound Emission Standards for Architectural Coatings: Volatile Organic Content: (gr/L) Not Applicable

WHMIS Classification(s): D - 2B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR). This MSDS contains all the information required by the CPR.

Trade Name: NVS® Concrete Aggregate & ZIC
Page Four

State Regulatory Information:

California Proposition 65: WARNING! This product contains substances known to the state of California to cause cancer, birth defects, or other reproductive harm.

New Jersey Hazardous List (Identification threshold (0.1%): None

Pennsylvania Hazardous Substance List (Identification threshold 0.01%): None

Massachusetts Hazardous Substance List (identification threshold 0.001% (1 ppm):

<u>Chemical Name</u>	<u>Cas #</u>	<u>Wt %</u>
Quartz	014808-60-7	1

Chemical Inventory Status:

All chemicals in this product are listed or exempt from listing in the following countries:

<u>US</u>	<u>CANADA</u>	
TSCA	DSL	NDSL
Yes	Yes	Yes

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 Expanded Vermiculite Magnesium-Alumino-silicate Mineral

Product Use: Concrete Aggregate

Formula: Blend of Vermiculite and Sand

CAS # (Chemical Abstract Service): NVS Concrete Aggregate - Mixture-Not applicable
 ZIC - 01318-00-9

Transportation Hazard Classification United States DOT

Proper Shipping Name: Not applicable
 UN/NA Number: Not applicable
 Domestic Hazard Class: Nonhazardous
 Label/Placard Required: Not applicable
 Surface Freight Classification: Vermiculite, other thin vermiculite

Section II - Ingredients

INGREDIENT	PERCENT (MAX)	EXPOSURE LIMITS	
		OSHA PEL	ACGIH TLV
Quartz CAS # 14808-60-7	1-60	TWA: 0.1 mg/m ³ respirable dust	TWA: 0.05 mg/m ³ (respirable fraction)
Vermiculite CAS # 001318-00-9	50 - 100	Not Available	Not Available

NOTE: See additional information in Work Hygienic Practices Section of the MSDS for additional information concerning Quartz.

In addition to the exposure limits referenced above, the following non-specific limits for dust apply to this product: OSHA, 15 mg/m³-TWA or Total Dust and 5 mg/mg³ as Respirable Dust, ACGIH, 10 mg/m³-TWA as Total dust and 3 mg/m³-TWA as Respirable Dust.

Section III - Physical Data

Boiling Point: Not applicable
 Evaporation Rate (Butyl Acetate = 1): Not applicable
 % Volatiles (gr/L): (70°F) (21°C) Not available
 Vapor Pressure (mm Hg.): Unknown
 Vapor Density (AIR =1): Unknown
 Solubility in Water: Negligible
 Bulk Density (lb./cu. ft): 4-10 PCF

Appearance and Odor: Brown or gray free flowing aggregate.
 Odor Threshold: None determined
 pH: Not applicable
 Specific Gravity (H₂O=1): Not applicable
 Physical State: Solid
 Viscosity: Not Applicable

Section IV - Fire and Explosion Data

Flash Point: Not applicable
Flash Point Method: Not applicable
Flammable Limits: LEL: Not available
UEL: Not available
Auto-Ignition Temperature: Not available
Extinguishing Media: Not applicable. Product will not burn.
Special Procedures: None
Unusual Hazards: None known

Section V - Health Hazard Data

Emergency Overview: **Caution!**

Causes eye irritation.
Caused respiratory tract irritation.
Avoid contact with eyes.

Potential Health Effects:

INHALATION: Causes respiratory tract irritation.
Effects include: Coughing, shortness of breath, wheezing and reduced pulmonary function from pneumoconiosis (dusty lungs).

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INGESTION: Ingestion is expected to be harmful. Effects include: No other effects expected unless listed below.

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Quartz: NTP: Known: Yes Suspect: Yes
IARC: Group 1 - Yes Group 2A & 2B - No
OSHA: Yes

Vermiculite: NTP: No
IARC: No
OSHA: No

Prolonged exposure to respirable crystalline silica (Quartz) has been associated with a lung cancer health risk in humans. See information in work hygienic practices section concerning quartz.

Mutagenicity: Not applicable
Teratogenicity: Not applicable
Reproductive Toxicity: Not applicable

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Stability: Stable X Unstable _____
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Hazardous Polymerization: May occur ____ Will not occur X

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Regulatory Chemical Lists:

CERCLA (Comprehensive Response Compensation and Liability Act): None present unless listed below)

SARA Title III (Superfund Amendments and Reauthorization Act):

SARA Section 312/Tier I & II Hazard Categories.

Health Immediate (acute)	No
Health Delayed (chronic)	No
Flammable	No
Reactive	No
Pressure	No

302 Reportable Ingredients (Identification Threshold 1%): None

313 Reportable Ingredients (Chemicals present below report threshold are exempt): None

National Volatile Organic Compound Emission Standards for Architectural Coatings: Volatile Organic Content: (gr/L) Not Applicable

WHMIS Classification(s): D - 2B

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Pennsylvania Hazardous Substance List (Identification threshold 0.01%): None

Massachusetts Hazardous Substance List (identification threshold 0.001% (1 ppm):

<u>Chemical Name</u>	<u>Cas #</u>	<u>Wt %</u>
Quartz	014808-60-7	1

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Product Class: Expanded Polystyrene Products
Trade Name: Insulperm[®] Insulation Board
Chemical Names and Family: Expanded Polystyrene Board and Custom Molded Polystyrene Inserts
Product Use: Insulation Board
Formula: (C₈H₈)_n
CAS # (Chemical Abstract Service): 09003-53-6

Transportation Hazard Classification United States DOT

Proper Shipping Name: Nonhazardous
 Hazard Class: Nonhazardous
 Identification #: Nonhazardous
 Label(s) Required: Nonhazardous
 Surface Freight Classification: Plastic articles, blocks or panels

Section II - Ingredients

INGREDIENT	EXPOSURE LIMITS		
	OSHA PEL	ACGIH TLV	NIOSH REL
Pentane, residual CAS # 00109-66-0	600 ppm-TWA 750 ppm-STEL 5000 ppm-IDLH	600 ppm-TWA 750 ppm-STEL	120 ppm for 10 hr-TWA

INGREDIENT: (Chemical Name, CAS #, & Common Name)	% BY WT.	TOXICITY DATA: LD ₅₀ & LC ₅₀
¹ Pentane, residual (CAS # 109-66-0)	0-3.0%	No data available

¹Contained as a blowing agent.

Section III - Physical Data

Boiling Point: Not applicable
 Evaporation Rate (Butyl Acetate = 1): Not applicable
 % Volatile by Volume: 0-3.0% as pentane
 Vapor Pressure (mm Hg.): 445 mmHg @ 70°F (for pentane)
 Vapor Density (AIR =1): >1 for pentane
 Solubility in Water: Negligible

Bulk Density (lb./cu. ft): Approx. 1.0
 Appearance and Odor: White to yellow lightweight board and molded parts with characteristic odor.
 Odor Threshold: Approx. 400 ppm (for pentane)
 pH: Not applicable
 Specific Gravity (H₂O=1): Not applicable

Section IV - Fire and Explosion Data

Flash Point: 49°C (for pentane)
Method Used: (C.C.)
Flammable Limits: LEL: 1.5% UEL: 7.8%
N.F.P.A. Rating: H-1, F-4, R-0 (for pentane)
Extinguishing Media: In case of fire, use dry chemical, carbon dioxide, or alcohol foam. When heated near melting point, EPS will drip and burn. Water may spread liquid and be ineffective.
Special Procedures: Because EPS produces copious amounts of thick black smoke when it burns, a NIOSH-approved positive-pressure self-contained breathing apparatus should be worn.
Unusual Hazards: Until much of the residual pentane dissipates, fresh EPS may be able to supply enough vapor to form a flammable mixture with air. The mixture is explosive only when confined. If unconfined suddenly, and ignited, its rate of flame of propagation is high, and the flame appears to move in a flash, but without explosion.

Section V - Health Hazard Data

Routes of Exposure:

INHALATION: Inhalation is not expected to be a problem in most situations. However, fresh polystyrene contains residual pentane and if large amounts of EPS materials are stored in a confined, unventilated area such as a semi-trailer truck, pentane may off-gas and create measurable airborne concentrations. Effects of inhaling pentane include dizziness, drowsiness, eye and nose irritation, dermatitis and loss of coordination.

SKIN AND EYES: Dust or scrap of product may irritate eyes if contact occurs. Repeated skin contact may cause slight physical irritation.

INGESTION: Not likely to occur in an industrial setting. Not generally considered to be toxic if swallowed.

Carcinogenicity According to NTP, IARC and OSHA: IARC (Vol. 19, 251, 1979) reported polystyrene as a positive animal carcinogen based upon animal studies where subcutaneous implantation of polystyrene discs, rods and spheres induced local sarcomas in rats. No human data or epidemiology studies on the carcinogenicity of polystyrene in humans are known to IARC.

Section VI - Reactivity Data

Stability: Stable X Unstable _____
Conditions to Avoid: Excessive heat, sparks and flame.
Hazardous Decomposition or Byproducts: Carbon dioxide, carbon monoxide.
Hazardous Polymerization: May occur ____ Will not occur X
Conditions to Avoid: None known

Section VII - Spill & Disposal Information - U.S. Only

Observe all precautionary measures (Section 8). Pick up or shovel into dry containers and recycle or remove for disposal.

Waste of this product is not defined as hazardous according to the US EPA (40 CFR 261.3). Consult state and local regulations to determine if their hazardous waste definitions differ from the US EPA. Dispose of waste in accordance with all applicable regulations.

Section VIII - Special Protection Information

Warning Statements: CAUTION!

Styrene Foam CAS # 9003-53-6 is an organic cellular plastic foam and therefore combustible.

Fresh EPS may contain residual pentane (CAS # 109-61-0) which is extremely flammable. However, pentane content dissipates upon aging.

Inhalation of pentane which may build up in confined spaces such as delivery trucks may cause dizziness, drowsiness, and loss of coordination.

Direct contact with styrene foam products or dust may cause slight physical irritation to eyes and skin.

Precautionary Measures:

Do not expose to open flames, sparks or excessive heat. Local building codes may require the use of a thermal or fire barrier.

Store fresh material in well-ventilated areas.

Gloves and glasses or goggles are recommended if direct contact leading to physical irritation is likely.

Respiratory Protection:

Not generally required. In nonroutine situations where pentane vapor build-up occurs, use of a NIOSH-approved organic vapor respirator (Type TC-23C-XXX) is recommended.

**Trade Name: Insulperm® Insulation Board
Page Three**

Ventilation:
Local Exhaust: No
Mechanical: Yes
Special: Not applicable

Other: Natural ventilation, i.e., winds, building cross-currents, etc., should be sufficient to adequately disperse residual pentane vapors released from fresh material.

Skin Protection: Gloves are recommended when handling EPS products to minimize repeated skin contact.

Eye Protection: Safety glasses are recommended when specific use of EPS products creates a significant amount of dust and/or scrap.

Other Protective Clothing or Equipment: Not applicable.

Work/Hygienic Practices:

Observe above precautions and practice good housekeeping.

**Section X - Government Reporting
Information - U.S. Only**

SARA Title III Reporting Information:
Tier I & II Hazard Categories: Fire
Contains Extremely Hazardous - SARA III Section 302 Ingredient: No
Contains Toxic Chemical Release - SARA III Section 313 Ingredient: No
Other Government Reporting Requirements: Not applicable.
Non-hazardous Ingredient Disclosure: Not applicable.

**Section IX - Emergency and First Aid
Procedures**

EYES: In case of eye contact, flush eyes with plenty of running water, lifting eyelids frequently. If irritation persists, consult a physician.

SKIN: If repeated skin contact results in persistent irritation, consult a physician to clear up condition and take precautionary measures to prevent its reoccurrence.

INHALATION: If vapor is inhaled, get fresh air immediately. Inform a supervisor. Consult a physician if symptoms persist.

INGESTION: If swallowed, consult a physician. Never give anything by mouth to an unconscious person.

The data included herein are presented according to Siplast's practices current at the time of preparation hereof, are made available solely for the consideration, investigation and verification of the original recipients hereof and do not constitute a representation or warranty for which Siplast assumes legal responsibility. It is the responsibility of a recipient of this data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection.

**Material Safety Data Sheet
for
Portland Cement**

Section I-Identity

Manufacturer's name and address: GCC Rio Grande, Inc.
P. O. Box 100
11783 South Hwy 337
Tijeras, NM 87059

Emergency Telephone Number: (505) 281-3311

Chemical Name and Synonyms: Portland Cement (CAS #65997-15-1)

Trade Name and Synonyms: Hydraulic Cement, Types I-II, III, & V

Section II-Chemical Data

Chemical family: Calcium Salts

Formula: Portland cement consists of a finely ground Portland cement clinker mixed with a small amount of calcium sulfate to control set. Portland cement clinker is a sintered material produced by heating to high temperature (greater than 1200 degrees Celsius) a mixture of substances such as limestone and shale from the earth's crust. The substances manufactured are essentially hydraulic calcium silicates contained in a crystalline mass, not separable into the individual components.

Substances similar to the following are known to be present in Portland cement:

3CaO.SiO ₂	TRICALCIUM SILICATE	(CAS # 12166-85-3)
2CaO.SiO ₂	DICALCIUM SILICATE	(CAS # 10034-77-2)
3CaO.AL ₂ O ₃	TRICALCIUM ALUMINATE	(CAS # 12042-78-3)
4CaO.AL ₂ O ₃ .Fe ₂ O ₃	TETRACALCIUM ALUMINO FERITE	(CAS # 12068-35-8)
CaSO ₄ .xH ₂ O	GYPSUM	(CAS # 13397-24-5)

Small amounts of CaO, MgO, K₂SO₄, Na₂SO₄ may also be present.

Section III-Hazardous Ingredients

Ingredients: Portland cements are listed by OSHA in 29 CFR 1910.1000, Table Z-1-A and require material safety data sheets (FR, January 19, 1989).. MSHA (30 CFR 55.5.-1, Ref. 2. ACGIH TLV's for 1973, Appendix E) and ACGIH (TLV's for 1984-5. Appendix D) list Portland cements as nuisance dusts. Portland cements are NOT listed by NTP, IARC, or OSHA as carcinogens. However, since Portland cement is manufactured from raw materials mined from the earth (limestone, marl, sand, shale, clay, etc.) and process heat is provided by burning fossil fuels, trace, by detectable, amounts of naturally occurring, and possible harmful, element may be found during chemical analysis. Under ASTM standards, Portland cement may contain .75 percent insoluble residue. A fraction of these residues may be free crystalline silica.

Section IV-Physical Data

Boiling Point:	Not applicable, Portland cement is a powdered solid.
Vapor Pressure:	Not applicable, Portland cement is a powdered solid.
Vapor Density:	Not applicable, Portland cement is a powdered solid.
Solubility in Water:	Slight (0.1-1.0%)
Specific Gravity:	(H ₂ O=1) 3.15
Evaporation Rate:	Not applicable, Portland cement is a powdered solid.
Appearance and Odor:	Gray or white powder; no odor.
Melting Point:	Not applicable.

Section V-Fire and Explosion Hazard Data

Flash Point:	Portland cements are noncombustible and not explosive.
Flammable or Explosive Limits:	Not applicable.
Extinguishing Media:	Not applicable.
Unusual Fire and Explosion Hazards:	None.
Lower Explosive Limit:	Not applicable.
Upper Explosive Limit:	Not applicable.

Section VI-Health Hazard Data

ACGIH Threshold Limit Value (1988-89):	Total dust containing no asbestos and less than 1% silica - 10 mg/m ³
OSHA PEL (Transitional):	Total dust - 50 million particles/ft ³
OSHA PEL (Final):	Total dust - 10 mg/m ³ Respirable Dust - 5 mg/m ³
Effects of Overexposure:	

Acute: Wet cement, especially as an ingredient in plastic (unhardened) concrete, mortar or slurries, can dry the skin and cause caustic burns. Direct contact with the eyes can cause irritation. Inhalation can irritate the upper respiratory system.

Chronic: Cement dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis. [Cement may contain trace (less than 0.05%) amounts of chromium salts or compounds including hexavalent chromium, or other metals found to be hazardous or toxic in some chemical forms. These metals are mostly present as trace substitutions within the principal minerals].

Emergency and First Aid Procedures: Irrigate eyes immediately and repeatedly with water and get prompt medical attention. Wash exposed skin areas with soap and

water. Apply sterile dressings. If ingested, consult a physician immediately. Drink water.

Section VII-Reactivity Data

Stability: Product is stable. Keep dry until used.

Incompatibility: Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur.

Section VIII-Spill Procedures

Steps to be taken in case material is spilled: Use dry cleanup methods that do not disperse the dust into the air. Avoid breathing the dust. Emergency procedures are not required.

Disposal Method: Small amounts of material can be disposed of as common waste or returned to the container for later use if it is not contaminated. Large volumes may require special handling.

Section IX-Special Protection Information

Respiratory Protection: In dusty environments, the use of a MSHA/NIOSH approved respirator is recommended.

Ventilation: Local exhaust can be used to control airborne dust levels.

Eye protection: Use tight fitting goggles in dusty environments.

Skin Protection: Use barrier creams, impervious, abrasion- and alkali- resistant gloves, boots and protective clothing to protect the skin from prolonged contact with wet cement in plastic concrete, mortar or slurries. Immediately after working with cement or cement-containing materials, workers should shower with soap and water. Precautions must be taken. Cement burns with little warning-- little heat is sensed.

Section X-Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ASTM	American Society for Testing and Materials
CAS	Chemical Abstract Service
CFR	Code of Federal Regulations
ft ³	Cubic foot
IARC	International Agency for Research on Cancer
m ³	Cubic meter
mg	Milligram
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
TLV's	Threshold Limit Values

Note: This material safety data sheet attempts to describe as accurately as possible the potential exposures associated with normal cement use. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. Users have the responsibility to evaluate and use this product safely and to comply with all applicable laws and regulations.



MATERIAL SAFETY DATA SHEET

HMIS
 H = 1
 F = 0
 R = 0
 PPE = See Section 8

Section I

Manufacturer: Siplast, an Icopal Group Company
 (800) 643-1591 or (800) 922-8800

Address: 1000 E. Rochelle Blvd., Irving, TX 75062

Emergency Phone No.: CHEMTREC, (800) 424-9300 (U.S.), (703) 527-3887 (outside of U.S.)

Product Class: Lightweight Concrete Decks

Trade Name: Zono-Patch™

Chemical Names and Family: Calcium Aluminate, Gypsum, Expanded Perlite, & Expanded Vermiculite

Product Use: Preformulated Mixture for Lightweight Concrete Decks

Formula: Blend of Calcium Aluminate, Gypsum, & Expanded Mineral Aggregates

CAS # (Chemical Abstract Service): Mixture-Not applicable

Transportation Hazard Classification United States DOT

Proper Shipping Name: Not applicable
 Hazard Class: Nonhazardous
 Identification #: Not applicable
 Label(s) Required: Not applicable
 Surface Freight Classification: Vermiculite other than crude

Section II - Ingredients

INGREDIENT	EXPOSURE LIMITS	
	OSHA PEL	ACGIH TLV
Calcium Aluminate mixture Up to 57% by weight Total dust exposure Calcium Aluminate CAS #12042-68-1 Calcium Dialuminate CAS #12004-08-9 Tetracalcium Aluminoferrite CAS #12068-35-8 Dicalcium Aluminosilicate CAS #12068-46-1 Calcium Aluminosulfate CAS #12004-11-4	5 mg/m ³	10 mg/m ³
Gypsum (calcium sulfate) CAS #7778-18-9 Up to 26% by weight Respirable dust Total dust	5 mg/m ³ 15 mg/m ³	10 mg/m ³
Perlite Volcanic Glass CAS #73763-70-3 Total dust Vermiculite Up to 10% by weight Altered Mica Material CAS #1318-00-9 Aluminum Magnesium Sulfate	N/A N/A N/A	10 mg/m ³ N/A N/A

INGREDIENT	EXPOSURE LIMITS	
	OSHA PEL	ACGIH TLV
Crystalline silica CAS #14808-60-7 Respirable dust	0.1 mg/m ³	0.1 mg/m ³

Trace Elements

Due to the use of substances mined from the earth’s crust, trace amounts of naturally occurring, potentially harmful constituents may be detected during chemical analysis. Calcium aluminate cement may contain up to 0.75% insoluble residue. A small amount of this residue includes free crystalline and heavy metals.

Section III - Physical Data

Boiling Point: Not applicable
 Evaporation Rate (Butyl Acetate = 1): Not applicable
 % Volatile by Volume: Not applicable
 Vapor Pressure (mm Hg.): Not applicable
 Vapor Density (AIR =1): Not applicable
 Solubility in Water: Negligible
 Bulk Density (lb./cu. ft): 8-12
 Appearance and Odor: Gray free flowing aggregate.
 Earthy odor.
 Odor Threshold: None established
 pH: In water 10-11
 Specific Gravity (H₂O=1): 3.15

Section IV - Fire and Explosion Data

Flash Point: None
 Method Used: Not applicable
 Flammable Limits: LEL: Not applicable
 UEL: Not applicable
 N.F.P.A. Rating: Not applicable
 Extinguishing Media: Not applicable
 Special Procedures: None
 Unusual Hazards: None known

Section V - Health Hazard Data

Emergency Overview

This product is a light gray 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 the material mixed with water 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 the dry product.

Potential Health Effects

Relevant Routes of Exposure:

Eye contact, skin contact, inhalation, and ingestion.
 EYE CONTACT: Exposure to airborne dust may cause immediate or delayed irritation or inflammation. Eye contact by larger amounts of dry powder or splashes of wet product slurry may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid and medical attention to prevent significant damage to the eye.
 SKIN CONTACT: Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet product slurry. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred.
 Exposure to dry product may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Dry product contacting wet skin or exposure to moist product or wet slurry 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 this product, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from 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 this product.

INHALATION: This product may contain trace amounts of free crystalline silica. Prolonged exposure to respirable free crystalline silica may aggravate other lung conditions. It also may cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease, and/or other diseases. (Also, "Carcinogenic potential" below.)

Exposure to this product may cause irritation to the moist membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.

INGESTION: Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are consumed. This product should not be eaten. This product will harden on contact with water. See physician immediately if symptoms occur. This product is not listed as a carcinogen by NTP, OSHA, or IARC. It may, however, contain trace amounts of substances listed as carcinogens by these organizations.

Crystalline silica, a potential trace level contaminant in this product, is not listed as a carcinogen by the Occupational Safety and Health Administration (OSHA). IARC has designated crystalline silica as carcinogenic to humans (Group 1). The NTP indicates that crystalline silica is reasonably anticipated to be a carcinogen (Group 2).

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

Pre-existing upper respiratory and lung diseases.

Section VI - Reactivity Data

Stability: Stable X Unstable _____

Conditions to Avoid: Unintentional contact with water.

Hazardous Decomposition or Byproducts: See Section 10

Hazardous Polymerization: May occur ____ Will not occur X

Section VII - Spill & Disposal Information - U.S. Only

Observing the above precautions, sweep up or shovel spilled material and place in suitable containers for recycle or disposal. Dampen with water spray or use other methods to clean spill which avoid creating dust.

Discard empty packaging promptly. Avoid excessive handling of empty packaging, which may result in unnecessary release of airborne particulates.

Do not wash Zono-Patch down drains.

Allow materials to "dry" before disposal.

Section VIII - Special Protection Information

Warning Statements:

CAUTION! MAY CAUSE SLIGHT IRRITATION.

Product contains vermiculite (CAS # 1318-00-9) and quartz (crystalline silica (CAS # 14808-60-7).

Eye contact may cause minor physical irritation. Inhalation of dust may cause upper respiratory irritation with coughing and sneezing.

Long-term exposure to airborne respirable quartz (crystalline silica) dust can decrease lung function and create risk of silicosis, pneumoconiosis, lung cancer and other lung disease.

Precautionary Measures:

Avoid contact with eyes.

Avoid creating and inhaling dust.

Provide adequate ventilation and respiratory protection.

Equip mixers with dust covers.

Respiratory Protection:

Wear a NIOSH approved (Type TC-21C-XXX) dust respirator to prevent exposures above the limits specified in Section II.

Ventilation: Use in well-ventilated area.

Local Exhaust: Not generally required, but should be used where available.

Mechanical: Not generally required, but should be used where available.

Special: None

Other: None

Skin Protection: Gloves recommended.

Eye Protection: Goggles recommended where exposure to excessive dust is likely.

Other Protective Clothing or Equipment: Normal work clothes.

Work/Hygienic Practices:

Use bag opening and disposal which minimizes dust release. Equip mixers with dust covers.

Section IX - Emergency and First Aid Procedures

EYES: In case of eye contact, do not rub eyes. Flush eyes with plenty of water while holding eyelids apart. If irritation, blinking or tearing occur and persist, consult a physician.

SWALLOWED: Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are consumed. This product should not be eaten. This product will harden on contact with water. See physician immediately if symptoms occur.

INHALATION: If inhaled, get fresh air. If symptoms persist, consult a physician.

Section X - Government Reporting Information - U.S. Only

SARA Title III Reporting Information:

Tier I & II Hazard Categories: Delayed - chronic, Immediate - acute

Contains Extremely Hazardous - SARA III Section 302 Ingredient: No

Contains Toxic Chemical Release - SARA III Section 313 Ingredient: No

California Proposition 65: Product sold in the state of California is labeled to comply with Proposition 65.

Non-hazardous Ingredient Disclosure: Water

STATUS UNDER USDOL-OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200

Calcium aluminate cement is considered a "hazardous chemical" under this regulation, and should be part of any hazard communication program.

STATUS UNDER CERCLA/SUPERFUND, 40 CRF 117 AND 302 – Not listed.

HAZARD CATEGORY UNDER SARA (TITLE III), SECTION 311 AND 312 – Calcium aluminate cement qualifies as "hazardous substance" with delayed health effects.

STATUS UNDER SARA (TITLE III), SECTION 313

Not subject to reporting requirements under Section 313.

STATUS UNDER TSCA (AS OF MAY 1997)

Calcium aluminate cement is on the TSCA inventory list.

STATUS UNDER THE FEDERAL HAZARDOUS SUBSTANCES ACT – Calcium aluminate cement is a "hazardous substance" subject to statutes promulgated under the subject act.

STATUS UNDER CALIFORNIA PROPOSITION 65

This product contains chemicals (trace metals) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.

STATUS UNDER CANADIAN ENVIRONMENTAL PROTECTION ACT – Not listed.

STATUS WHMIS

Calcium aluminate cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A.E – Corrosive Material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

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