Section 1, Identification

Product Name: Vacuum insulated panel, VIP

Chemical family: Mixture

Material Use of Occurrence: Insulation

HMIS: 2 – Health, 1 – Flammability, 0 - Reactivity

Emergency Contact: Pelican BioThermal (877) 537 9800

Section 2, Hazard(s) Identification



The physical hazards of this substance have not been fully evaluated and care should be taken when handling the product. Some grades of carbon black may be electrically conductive and dust may be fine enough to penetrate electrical boxes unless tightly sealed. Some grades may be combustible. Fire may not be visible in powder.

Potential Health Effects

- **Eye**: May cause irritation or abrasions at high dust levels.
- **Skin:** May cause drying of skin.
- **Ingestion:** Unknown. Based on composition, none expected.
- **Inhalation:** Temporary discomfort due to inhalation of dust concentrations above the industry standards.
- **Chronic (Cancer Info.):** Experimental blend. Carbon black has been evaluated by IARC as possibly carcinogenic to humans (Group 2B). Refer to section 11 for further information.
- **Teratology**: None identified.
- **Reproduction Information:** None identified.
- **Target Organs:** None identified.

Section 3, Composition/Information on Ingredients

Substance Trivial Name: Vacuum Insulated Panel, VIP

Formal Name: Proprietary Silicon Dioxide Carbon mixture

Chemical Family: Mixture

Component:

- Synthetic Amorphous Silicon Dioxide
- Carbon Black
- Proprietary Fibers

Chemical Formula: SiO2 and C

CAS No.

112945-52-5 (Specific-Silica)

7631-86-9 (General Silica)

1333-86-4 (Carbon Black)

Proprietary

% by Weight

- Silicon Dioxide—75–95%
- Carbon Black—5–25%
- Proprietary Fibers <5%

The exact composition is with-held as a trade secret.

Section 4, First-Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If symptoms persist, seek medical attention.

Ingestion: No adverse effects expected. If swallowed, do not induce vomiting. Rinse mouth with water. Symptomatic treatment is recommended. Seek medical attention in event of large quantity ingestion.

Eyes: Immediately flush lightly with plenty of water for at least 15 minutes. If symptoms develop, seek medical attention.

Skin: No adverse effects expected. Wash with soap and water.

Advice to Physicians: Treat symptomatically for lung or eye irritation, if present.

Section 5, Fire-Fighting Measures

Extinguishing Media: Water fog or foam. Use to cool below ignition point and/or exclude air.

Unsuitable Media: Water stream

Flash Point

Mixture: Unknown

500°C (Carbon black) - Flash Point Method, Pensky-martin Closed Cup (carbon black)

Lower Explosive Limit

Mixture: Unknown

122 g/m3 (carbon black)

Upper Explosive Limit: Not Applicable

Ignition in Air: Mixture - Unknown

Above 315°C (carbon black)

Flammability Classification: Carbon black - Combustible solid.

Flame Propagation in Air: Very slow burning solid (carbon black)

Fire Fighting Procedure: Normal fog nozzle water application and/or exclusion of air.

Combustion Hazards: Carbon monoxide (CO) and carbon dioxide (CO2)

Protective Equipment: Standard personal protective equipment for structural firefighting.

Unusual Fire Hazards: Unknown. See section III.

Dust Explosion Potential: Unknown. Carbon black may create explosive mixture with air at high dust concentration.

Sensitivity to Impact: Not Applicable

Static Discharge Effects: Material can build up static electrical charges when subjected to friction. See Section III.

Section 6, Accidental release measures

Personal Precautions: Wear goggles if release creates conditions where eye contact is probable. If airborne dust concentrations exceed the applicable exposure limit, then an approved respirator for dust/mists is recommended.

Spill Cleanup Measures: Spills may be collected, preferably by vacuum, and placed in suitable container for disposal.

Environmental Precautions: Material is not a hazardous waste Dispose of in landfill or by incineration in accordance with international, national, U.S., federal and local laws and regulations.

Section 7, Handling and Storage

Handling: Ventilate work area if necessary. Take precautionary measures against possible buildup of electrostatic charge. Assess manual handling of bagged product; take suitable precautions.

Storage: Product should be stored dry and away from volatile chemicals.

Hygienic Practices: Avoid eye and skin contact. Do not breathe dust from broken packages. Wash exposed skin frequently. Good practices should be followed in regard to work clothing.

Special Precautions: Avoid creating dust. Clean up spills promptly.

Section 8, Exposure Controls/Personal Protection

Inhalation Standards:

- **Silica**
  - TLV (U.S.) = 10 mg/m3 total dust for particles not otherwise classified
  - PEL (U.S.) = Not applicable
- **Carbon Black**
  - TLV (U.S.) = 3.5 mg/m3 TWA 8 hr/day, 40 hr/week
  - PEL (U.S.) = 3.5 mg/m3 TWA 8 hr/day, 40 hr/week

Eye-Face Protection: Safety glasses with side shields or goggles recommended to prevent eye contact.

Skin Protection: Drying may occur. Barrier cream application prior to skin exposure may assist in the removal of silica from the skin.

Protective Clothing: None required.

Respiratory Protection: Approved dust/mist respirator recommended for concentrations above applicable exposure limit.

Engineering Controls: Use general or local exhaust ventilation to meet exposure limit requirements.

Other Protective Measures: Wash exposed skin frequently. Good practices should be followed in regard to work clothing.

Section 9, Physical and Chemical Properties

Physical State: Solid Powder wrapped in plastic

Color: Black

Odor: None

Odor Threshold: Not Applicable

pH: Not Applicable

Boiling Point: Not Applicable

Evaporation Rate: Not Applicable

Melting/Freezing Point: Not Applicable

% Volatile by Volume: Unknown

Solubility in Water: Insoluble in cold and hot water

Specific Gravity: 1.7–2.2 g/cm3

Vapor Density: Not Applicable

Vapor Pressure: Not Applicable

Reid Vapor Pressure: Not Applicable

Water/Oil Distribution: Not Applicable

Viscosity: Not Applicable

Pour Point: Not Applicable

Section 10, Stability and Reactivity

Chemical Stability: Stable

Conditions to Avoid: Carbon black - contact with strong oxidizers. Excessive heat or flame.

Incompatible Materials: Carbon black: strong oxidizers

Reactivity: Carbon black may react exothermicly upon contact with strong oxidizers.

Hazardous Decomposition: Carbon black releases carbon monoxide (CO) and carbon dioxide (CO2) when burning. Plastic wrap may release noxious fumes when burned.

Hazardous Polymerization: None

Section 11, Toxicological Information

Routes of Exposure: Inhalation, eye and skin contact.

Acute Inhalation Effect: Temporary discomfort due to inhalation of dust concentrations above exposure limits.

Acute Ingestion Effect: None expected.

Acute Eye Effect: May cause irritation at high dust levels.

Acute Skin Effect: May cause drying of skin.

Chronic Inhalation Effect

Human Studies: In its Monograph Volume 65, issued in April 1996, the International Agency for Research on Cancer (IARC) reevaluated carbon black and concluded that “there is inadequate evidence in humans for the carcinogenicity of carbon black.” Monograph Volume 42, issued in 1987, the International Agency for Research on Cancer (IARC) evaluated amorphous silica and concluded that “there is in adequate evidence in humans for the carcinogenicity of amorphous silica.”

Animal Toxicity Studies: Chronic inflammation, lung fibrosis, and lung tumors have been observed in some rats experimentally exposed, for long periods of time, to excessive concentrations of carbon black and several other insoluble fine dust particles. Tumors have not been observed in other animal species (i.e., mouse and hamster) under similar circumstances and study conditions. Many researchers conducting rat inhalation studies believe that these effects most likely result from the massive accumulation of small dust particles in the lung which overwhelm the natural lung clearance mechanisms, known as the “lung overload” phenomenon, rather than from a specific chemical effect of the dust particles in the lung. Amorphous silica was not used in these research studies.

Chronic Ingestion Effect: None expected.

Chronic Eye Effect: None expected.

Chronic Skin Effect: None expected.

Sensitization to Material: None expected.

Medical Conditions Aggravated: Dermatitis.

Synergistic Materials: None expected.

Mutagenicity: None known.

Reproductive Toxicity: None known.

Teratogenicity: None known.

Carcinogenicity: Carbon black (IARC 2B) — possibly carcinogenic.

LD50 for Material

Toxicological studies have not been conducted.

Section 12, Ecological Information

Mobility: Not soluble in water, not mobile in soil.

Persistence/Degradability: Not Applicable

Bio-Accumulation: Not Applicable

Eco-toxicity: WGK Water Hazard Class - 0, KBwS-classification.

Section 13, Disposal Consideration

Legal Classification: Dispose of in accordance with European, federal, state and local laws and regulations. As sold, not defined as a hazardous waste under U.S. RCRA (Resource Conservation and Recovery Act) regulations.

Container Disposal: Return reusable containers to manufacturer, incinerate or recycle bags.

Section 14, Transport Information

UN Number: Not classified

UN Proper Shipping Name: Not classified

UN Class: Not classified

UN Packing Group: Not classified

GGVS/GGVE/RID/ADR/IMDGCode/ICAO-TI Information: Not hazardous

US Rail Regulations: Not classified

Section 15, Regulatory Information

This material should only be handled by properly trained personnel familiar with its physical and chemical characteristics.

EINECS Registration Numbers of Components:

Amorphous Silica: 2315454

Carbon Black: 2156099

All of the components of this product are either exempt or listed under EINECS.

Section 16, Other Information

Label Text

- **CAUTION:** Dust may irritation to the eyes and respiratory tract.
- **AVOID BREATHING DUST:** Use engineering controls to reduce dust levels where feasible. Wear approved respirator if necessary to prevent exposures above 3.5 mg/m3.
- **FIRST AID:** Flush irritated eyes with water. For respiratory irritation, remove victim to fresh air. Wash exposed skin daily with mild soap and water.
- **STORAGE:** Store in a cool dry place.

Disclaimer

The information contained herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge at this date. It is provided without warranty, expressed or implied, as to the results of use of this information or to the product to which it relates. Recipient assumes all responsibility for the use of this information and the use, storage, or disposal of the product, including any resultant personal injury or property damage.

Section 1, Identification of the substance/mixture and of the company

1.1 Product Identifier
Trade Name: 4C PCM

1.2 Relevant Identified uses of the substance or mixture and uses advised against

Uses of the substance/mixture: Thermal Storage

1.3. Details of the supplier of the safety data sheet

Pelican BioThermal

3020 Niagara Lane N

Plymouth, MN 55447

1.4 Emergency telephone number

CHEMTREC: 1-800-424-9300

Section 2, Hazards identification

2.1 Classification of the substance or mixture

Classification (GHS-US)

Hazard Code: H304, H315

Hazard Class: May be fatal of swallowed and enters airways (Category 1)**,** Causes skin irritation (Category 2)

Handle in accordance with Good Industrial Hygiene and Safety Procedure

2.2 Label elements

GHS-US labeling

Hazard Pictogram (GHS-US)

Signal Word (GHS-US): Danger

Hazard Statements (GHS-US):

H304: May be fatal if swallowed and enters airways

H315: Causes skin irritation

Precaution Statements (GHS-US):

P264: Wash thoroughly after handling

P280: Wear protective gloves/protective clothing/eyes protection/face protection

P321: Specific treatment (see SECTION 4)

P331: Do NOT induce vomiting

P362: Take off contaminated clothing and wash before reuse

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P302+P352: IF ON SKIN: Wash with soap and water

P332+P313: If skin irritation occurs: Get medical advice/attention

P405: Store locked up

P501: Dispose of contents/container in accordance with local, state and federal authorities.

2.3 Other Hazards

No additional information available

2.4 Unknown acute toxicity (GHS-US)

No data available

Section 3, Composition/information on ingredients

3.1 Substance

Not applicable

3.2 Mixture:

Name	CAS #	%
Blend of Heavy Cut Hydrocarbons	Proprietary	Proprietary

*The exact composition for this mixture is considered to be a Trade Secret withheld in accordance to 29 CFR.1910.1200

Section 4, First-aid measures

4.1 Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible)

First-aid measures after inhalation: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing Use artificial respiration and oxygen if needed. Seek medical attention

First-aid measures after skin contact: IF ON SKIN: Immediately rinse with plenty of water (for at least 15 minutes). If irritation persists, seek medical attention.

First-aid measures after eye contact: IF IN EYES: Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Consult a physician

First-aid measures after ingestion: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Dilute stomach contents by drinking water. If vomiting occurs spontaneously, keep head below hips to prevent breathing vomit into lungs. Call physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries: Causes skin irritation. May be fatal if swallowed and enters airways.

Symptoms/injuries after inhalation: See Section 2.2.

Symptoms/injuries after skin contact: May cause skin irritation.

Symptoms/injuries after eye contact: May cause eye irritation.

Symptoms/injuries after ingestion: May cause gastrointestinal irritation, nausea, vomiting, and diarrhea if swallowed.

Chronic symptoms: No data available.

4.3 Indication of any immediate medical attention and special treatment needed

No additional information available

Section 5, Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide. Dry powder. Water spray

5.2 Extinguishing media

Fire hazard: Flash Point > 200 F.

Explosion hazard: Product is not explosive.

Reactivity: No dangerous reactions known under normal conditions of use.

5.2 Advice for firefighters

Firefighting instructions: Do not dispose of fire-fighting water in the environment. Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Section 6, Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

General measures: Ventilate area. Avoid breathing vapors, mist or gas. Spill should be handled by trained clean-up crews. For personal protection see Section 8.

6.1.1 For non-emergency personnel

Protective equipment: Wear Protective equipment as described in Section 8.

Emergency procedures: Contain the spill. Do not let product enter drains.

6.1.2 For emergency responders

Protective equipment: Wear Protective equipment as described in Section 8.

6.2 Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3 Methods and material for containment and cleaning up

For containment: Prevent entry to sewers and public waters. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Place in a suitable container for disposal in accordance with the waste regulations (see Section 13).

6.4 Reference to other sections

No additional information available

Section 7, Handling and Storage

7.1 Precautions for safe handling

Precautions for safe handling: Do not handle until all safety precautions have been read and understood. Wear proper safety equipment including chemically resistant gloves and safety glasses or goggles. Use with adequate ventilation. Wash thoroughly after handling. Do not get in eyes. Avoid prolonged or repeated contact with skin. Do not breathe mist or vapor. Do not swallow.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions: Keep only in the original container in a cool, well ventilated place away from: heat sources. Keep container tightly closed.

7.3 Specific end use(s)

No additional information available

Section 8, Exposure controls/personal protection

8.1 Control parameters

Chemical Blend of Heavy Cut Hydrocarbons			
OSHA PEL (TWA) ppm - if units not stated	OSHA PEL (STEL) ppm - if units not stated	OSHA PEL (Ceiling) ppm - if units not stated	ACGIH-TLV
Not Established	Not Established	Not Established	Not Established

8.2 Exposure controls

Personal protective equipment: Chemical resistant gloves. Protective clothing. Safety glasses or goggles

Hand protection: Chemical resistant gloves.

Eye protection: Safety glasses or goggles.

Skin and body protection: Wear long sleeves. Wear suitable protective clothing.

Respiratory protection: Respiratory protection is not required. However, where excessive vapor, mist, or dust may result, use approved respiratory protection equipment.

Section 9, Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Clear liquid or White Solid
Color	:	No data available
Odor	:	No data available.
Odor Threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available

Melting point	:	~ 4 °C
Freezing point	:	~ 4 °C
Boiling point	:	No data available
Flash point	:	> 200 F
Self-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	0.762 g/ml
Solubility	:	NOT Soluble in water.
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	No data available

9.2 Other information

No additional information available

Section 10, Stability and reactivity

10.1 Reactivity

No dangerous reactions known under normal conditions of use.

10.2 Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3 Possibility of hazardous reactions

None known.

10.4 Conditions to avoid

Avoid intense heating.

10.5 Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents.

10.6 Hazardous decomposition products

Thermal decomposition generates: Carbon oxides (CO, CO2). No other decomposition products are known.

Section 11, Toxicological information

11.1 Information on toxicological effects

Oral LD50: > 2,000 mg/kg (rat) Calculated

Dermal LD50: > 2,000 mg/kg (rabbit) Calculated

Inhalation LC50: No Data

Skin corrosion/irritation	:	Causes skin irritation.
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
Specific target organ toxicity (single exposure)	:	Not classified
Specific target organ toxicity (repeated exposure)	:	Not classified
Aspiration hazard		See section 2.1 and 2.2
Symptoms/injuries after inhalation	:	See Section 4.
Symptoms/injuries after skin contact	:	See Section 4.
Symptoms/injuries after eye contact	:	See Section 4.
Symptoms/injuries after ingestion	:	See Section 4.
Chronic symptoms	:	No data available.

Section 12, Ecological information

12.1 Toxicity

No Data.

12.2 Persistence and degradability

No Data.

12.3 Bio accumulative potential

No Data.

12.4 Mobility in soil

No Data.

12.5 Other adverse effects

No Data.

Section 13, Disposal consideration

13.1 Waste treatment methods

Waste treatment methods: Do not discharge to public wastewater systems without permit of pollution control authorities. No discharge to surface waters is allowed without an NPDES permit.

Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Do not allow the product to be released into the environment.

Section 14, Transport information

14.1 UN number, proper shipping name, class and packaging group

Domestic Ground Shipments

Not DOT Regulated

14.2 Additional information

No additional information available

Section 15, Regulatory Information

15.1 US Federal regulations

TSCA Inventory: The components of this product are proprietory.

SARA Section 311/312, Hazard Category (40CFR 370.2): None known.

SARA Section 313, Toxic Release Reporting (40CFR Part372): No listed substances known over 1.0%. (No known carcinogens over 0.1%).

SARA Section 302, EHS Emergency Planning (40CFR Part 355): No listed substances known over 1.0%.

SARA Section 304, EHS Release Reporting (40CFR Part 355): No listed substances known over 1.0%.

CERCLA Section 102-103 HS Release Reporting (40 CFR par302-102a): No listed substances known over 1.0%.

15.2 International regulations

15.2.1 National regulations

No Data.

15.3 US State regulations

California Prop. 65: No listed substance known to be present.

Section 16, Other Information

NFPA health hazard	:	1
NFPA fire hazard	:	1
NFPA reactivity	:	0

HMIS III Rating

Health	:	1
Flammability	:	1

Physical	:	0
Personal Protection	:	X

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