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.