

# BioPCM™

## Material Safety Data Sheet

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Product Name: BioPCM™  
Manufacturer: Phase Change Energy Solutions  
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### A. PHASE CHANGE COMPONENT OF BIOPCM

#### SECTION 1 - IDENTIFICATION OF THE SUBSTANCE

Synonyms/Trade Names: BioPCM™

Forms: Solid Gel below Transition Temperatures / Soft Gel above Transition Temperatures

Product uses: Common uses for this product are thermal energy storage

#### SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients and Components: Derivatives of Fatty Acids, Fatty Alcohols, Esters, Emulsifiers, Thickening Agents and proprietary Cross linkers.

#### SECTION 3 - HAZARDS IDENTIFICATION

- European Hazard Classification: This product is not classified as dangerous according to Directive 67/548/EEC.
- Emergency Overview: North America - Non - Hazardous
- Potential Health Effects:
  - Eye - Accidental exposure to the eyes may produce a mild but transient irritation.
  - Skin - Very mild to no irritation expected.
  - Inhalation - No harmful effects expected with normal use.
  - Ingestion - May cause gastrointestinal irritation.
  - If product is heated, vaporization can occur. Eye, skin, and upper respiratory irritation can occur.
  - Physical/Chemical Hazards: None identified.

## • SECTION 4 - FIRST AID MEASURES

- Eye - In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists, get medical attention.
- Skin - Wash skin with soap and water upon contact. Remove contaminated clothing. If irritation persists, get medical attention. Wash clothing before reuse.
- Inhalation - Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
- Ingestion - If swallowed, do NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

## SECTION 5 - FIRE FIGHTING MEASURES

- Extinguishing media:
  - SMALL FIRES: CO<sub>2</sub> or dry chemical
  - LARGE FIRES: Foam
- Unsuitable extinguishing media: Water spray may be ineffective on fire.
- Explosive limits in air:
  - Upper: Not available
  - Lower: Not available
- Special Protective Equipment: Wear self-contained breathing apparatus and full protective clothing.
- Other Fire Fighting Considerations: Cool containers with flooding quantities of water until well after fire is out.

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

- Personal Precautions: Wear protective clothing and equipment. An appropriate NIOSH/MSHA approved respirator should be used if a mist or vapor is generated.
- Environmental Precautions: Dike flow of spilled material using soil or sandbags to minimize contamination of drains, surface and ground waters.
- Procedures for Spill/Leak Clean-up: Ventilate area and eliminate all ignition sources. Contain spill. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers for disposal.

## SECTION 7 - HANDLING AND STORAGE

- Handling: Handle in accordance with good hygiene and safety procedures. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.
- Storage: Can be stored in most common storage vessels including glass, fiberglass, and stainless steel. Keep away from heat, sparks or open flames. Keep away from possible contact with incompatible substances. Store in a cool dry place in accordance with NFPA 30.

## SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

- General Precautions: Good industrial hygiene should be followed. Avoid breathing (heated) vapors. Avoid eye and skin contact.
- Exposure Limit Values: Not established.
- Exposure Controls: ○ Engineering Controls: Ventilation: Local exhaust - preferred
  - Mechanical - may be necessary if working at elevated temperatures or in enclosed areas.
- Personal Protective Equipment: ○
  - Eye - Goggles or face shield with goggles, dependent upon potential exposure
  - Skin - Protective gloves
  - Dependent upon degree of potential exposure, additional personal protective equipment may be required, such as chemical boots and full protective clothing.
  - Inhalation - None required for ambient temperature, although an appropriate NIOSH/MSHA approved air-purifying respirator should be used if a mist or vapor is generated. A NIOSH/MSHA approved self-contained breathing apparatus or air supplied respirator is recommended if the concentration exceeds the capacity of cartridge respirator.
- Other Controls: Boots, eye wash fountain, safety shower, apron, protective clothing.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

- General Information:
  - Physical State at 25°C: Soft Gel
  - Density: 0.8-0.9
  - Appearance: Semi Transparent
  - Odor: Neutral
  - pH: Not applicable
  - Flammability (solid, gas): Not available
  - Boiling point: >480° F (249° C)
  - Oxidizing properties: Not available
- Solubility:
  - Water solubility: Negligible
  - Fat solubility (solvent-oil to be specified): Not available
- Partition coefficient: n-octanol/water: Not available
- Viscosity: Not available
- Vapor density: Not available
- Evaporation Rate (nBuOAc=1): Not available
- Explosive Limits: Not available
- Auto ignition temperature: Not available
- Coefficient of water/oil distribution: Not available

## SECTION 10 - STABILITY AND REACTIVITY

- Stability: Stable under normal operational procedures.
- Conditions to Avoid: Not available
- Materials to Avoid: Avoid oxidizing agents
- Hazardous Decomposition Products: Carbon monoxide with incomplete combustion.
- Hazardous Polymerization: Will not occur.

## SECTION 11 - TOXICOLOGICAL

- ACUTE ORAL TOXICITY/RATS: Practically non-toxic. The acute oral LD50 >5 g/kg body weight.
- EYE IRRITATION/RABBITS: The application of undiluted material to the rabbit's eye produced no irritation.
- SKIN IRRITATION/HUMANS: Mild irritation.

## SECTION 12 - ECOLOGICAL INFORMATION

Ecological Toxicity - Not Determined  
Environmental Fate - Not Determined

## SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose of in compliance with all Federal, State, and local regulations.

## SECTION 14 - TRANSPORT INFORMATION

Not classified in DOT, ADR/RID, IMDG, IATA/ICAO

## SECTION 15 - ADDITIONAL REGULATORY INFORMATION

- TSCA Inventory Status - This product and/or all of its components are included on the TSCA Inventory of Chemical Substances.
- TSCA 12(B) Components - None
- SARA 311/312 Hazardous Categories - None

## SECTION 16 - OTHER INFORMATION

HMIS Ratings: Health - 1 Flammability - 1 Reactivity - 0

NFPA Ratings: Health - none Flammability - none Reactivity - none