

MPCM 43

Microencapsulated Phase Change Material

Phase Change: 45°C, 113°F

DESCRIPTION

Microencapsulated phase change materials (MicroPCMs) are very small bi-component particles consisting of a core material, the PCM, and an outer shell or capsule wall. PCMs are low melting materials with melt points in the range of -30°C to 70°C that can absorb and release large amounts of heat. The capsule wall is an inert, stable polymer or plastic.

APPLICATIONS

Microencapsulated PCMs are used to regulate temperatures and for heat storage in a variety of applications.

A primary use of the microPCM products is in the coating of fabrics and foams for the textile industry. The coated materials have broad applications for use in various wearing apparel such as inner and outer garments, gloves and footwear. These end-use products containing microPCMs work by absorbing the body's excess heat, storing that heat, and releasing it back to the body as needed.

Microencapsulated PCMs are also finding widespread use in several other application areas, including in:

- **Electronics** - for cooling electrical components in computers, increasing duty cycles in lasers, and helping maintain constant temperatures for scientific instrumentation and military equipment used in the field.
- **Building Materials** – to increase the energy efficiency of residential and commercial buildings. The materials are being used in combination with radiant heat and solar energy to extend the heating and cooling efficiencies of these systems. PCMs are also being incorporated in plasters, fiberboards, tiles, and insulation.
- **Storage Solutions** – to protect food, beverages, medical products, and temperature-sensitive chemicals in transit.

PROPERTIES

The MPCM 43 product exhibits the following general properties:

Typical Properties

Appearance	White to slightly off-white color
Form	Wet cake (70% Solids, 30% Water)
Capsule composition	85-90 wt.% PCM 10-15 wt.% polymer shell
Core material	Paraffin
Particle size (mean)	14-24 micron
Melting Point	45°C (113°F)
Heat of Fusion	210 - 220 J/g
Specific Gravity	0.9
Temperature Stability	Extremely stable – less than 1% leakage when heated to 250°C
Thermal Cycling	Multiple

PACKAGING

This product is generally shipped in 50-gallon fiber drums of 250 pounds net weight (175 pounds nominal dry weight). Sample quantities may be ordered for customers requiring smaller amounts of product.

HEALTH AND SAFETY

Please refer to the Safety Data Sheet (SDS) for necessary safety and handling precautions for this product.

