

## **MPCM (-30)**

### **Microencapsulated Phase Change Material**

**Phase Change: -30°C, -22°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 55°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 wide spread applications in several other 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 (-30) 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)	17-20 micron
Melting point	-30°C (-22°F)
Heat of Fusion	140 -150 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**

The product is classified as non-hazardous. Please refer to the Material Safety Data Sheet (MSDS) for necessary safety and handling precautions for this product.