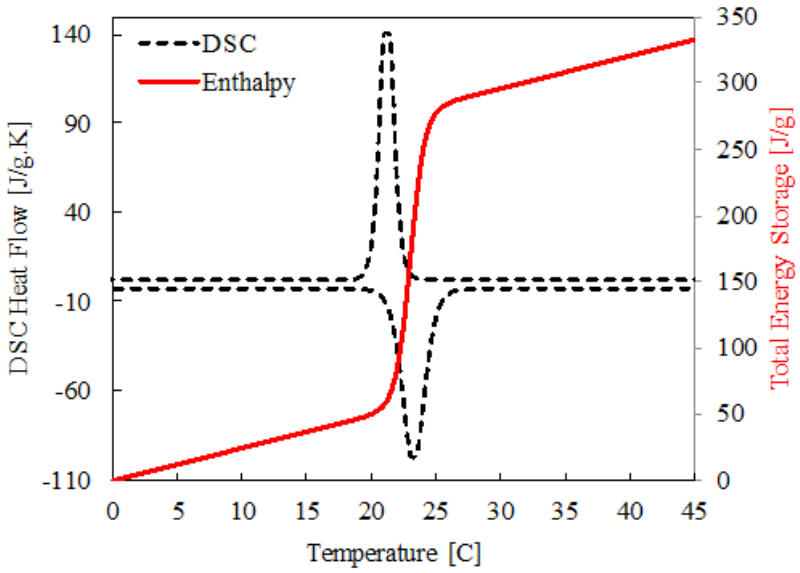
BioPCM® Technical Data Q23

- Environmentally-friendly, derived from naturally occuring, food grade substances
- Non-toxic and biodegradable
- Tunable energy storage capacity; more BTUs per pound of PCM
- Tunable density; more BTUs in the same volume
- Tunable thermal conductivity, for improved reaction with subtle changes in temperature
- Non-corrosive
- Chemically stable
- Long lifetime of performance, no degredation in melting temperature or thermal energy storage after thousands of freeze/melt cycles (100+ years)
- Small volume changes during phase transitions

BioPCM Q23 Tunable Physical and Chemical Properties

Property	Value (SI)	Value (Imperial)
Melting Point	23°C	73.4° F
Latent Heat	210 – 250 J/g	90 – 110 BTU/lb
Energy Storage Capacity	400 – 1250 kJ/m^2	35 – 110 BTU/sq ft
Specific Heat	2.2 – 4.5 J/gK	0.6 – 1.1 BTU/lb°F
Thermal Conductivity	0.15 – 2.5 W/mK	0.09 – 1.45 BTU/ft hr °F
Relative density	0.85 – 1.4 g/mL	53 – 87 lb/ft^3
Viscosity	Liquid, viscous gel, solid-solid gel	



NOTE: Tunable material, physical/chemical properties vary depending on the presence and the concentration of gelling agents

Phase Change Energy Solutions is a global leader in the development and deployment of next generation energy efficiency and thermal storage solutions that harness the power of BioPCM®, the company's proprietary phase change material. Phase Change Energy Solution's BioPCM® products are used to improve whole-building energy efficiency in retail, commercial, hospitality and industrial applications; enable safe transport of sensitive food and pharmaceutical products; and provide enhanced thermal storage capabilities for industrial processes. Fortune 100 banking, telecom, hospitality and technology companies, as well as the U.S. government, have installed millions of square feet of BioPCM® products to reduce operating expenses and environmental impact.

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PHASECHANGE™ ENERGY SOLUTIONS