



## PureTemp® Thermal Energy Storage Materials

PureTemp thermal energy storage materials offer new levels of performance in storing or releasing large quantities of thermal energy at any given temperature. Our proprietary formulations and patented manufacturing processes yield superior quality biobased phase change materials at cost effective prices.

Some key properties:

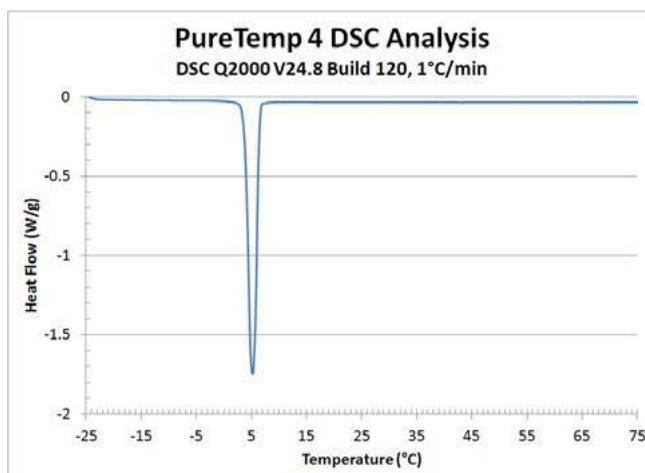
- Thermal energy storage capacities which average 200 J/g
- Over 200 unique, engineered phase change transition temperatures between -40 °C and 151 °C
- Consistent, repeatable performance over thousands of thermal (melt/solidify) cycles
- 100% renewable and readily biodegradable – produced from agricultural sources, not petroleum

### PureTemp 4 Technical Information

PureTemp 4 is a USDA Certified Biobased product

Appearance	Clear liquid, waxy solid
Melting point	5 °C
Heat storage capacity	187 J/g
Thermal conductivity (liquid)	0.15 W/m°C
Thermal conductivity (solid)	0.25 W/m°C
Density (liquid)	0.88 g/ml
Density (solid)	0.96 g/ml
Specific heat (liquid)	2.26 J/g°C
Specific heat (solid)	1.78 J/g°C

Typical physical properties are listed in the table above.



### Thermal Cycle Stability

A thermal cycle stability study was performed on PureTemp 4 in which samples underwent a series of freeze and thaw cycles. The two-year study completed 10,000 thermal cycles, with performance analyses performed on the samples at various time points. The study for PureTemp 4 found that:

- The average latent heat for PureTemp 4, over the course of 10,000 cycles, passes the product specification.
- PureTemp 4 maintained a peak melting point of  $4.7 \pm 0.2$  °C.

PureTemp 4 is stable through 10,000 thermal cycles, which is approximately 27.4 years of continuous daily usage.

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requirements may vary and each purchaser is urged to perform their own tests, experiments, and investigations in the use of this product. For detailed safety and handling information regarding these products, please refer to the respective PureTemp Safety Data Sheet.