

TECHNICAL DATA SHEET OF OM55

savE[™] Phase Change Materials (PCM) are organic or inorganic chemical compound that have large amount of heat energy stored in the form of Latent Heat which is absorbed or released when the materials change state from solid to liquid or liquid to solid. The PCM retains its latent heat without any change in physical or chemical properties over thousands of cycles. Various specific temperature PCM's are commercially available in the market (varying between -35°C to 90°C) depending upon the applications.

Applications

PCM provides energy efficient solutions for many industries including:

- Insulation for Building and Piping Products
- Biopharmaceutical Transportation
- Telecommunications and Heat Sinks
- Hot and Cold Storage
- Food / Poultry / Milk Products Transportation
- Boiler and Hot Water Systems Industry looking to exploit Off-Peak Electricity Tariffs / Reducing Chilling Equipment Costs by Storing Energy at Off-Peak Hours

However there is no limit as to who can apply PCM technology to their operation, to improve thermal management, cost and energy efficiencies.

PLUSS[®] Encapsulation

Pluss[®] pioneered the use of HDPE panels as encapsulation for PCMs in India. Our calculations for total heat transfer across thin membranes show that HDPE / PP is as good as aluminium, stainless steel, etc. Pluss[®] encapsulations are thin enough to give good overall heat transfer coefficient as good as many metals with better mechanical strength.

savE[™] OM 55

savE[™] OM 55 is an organic chemical based PCM having melting temperature of 55⁰C. It stores thermal energy as latent heat in its crystalline form. On changing phase this latent heat is released or absorbed, allowing the ambient temperature within the system to be maintained

OM 55 is constituted of the right mix of various additives allowing equilibrium between solid and liquid phases to be attained at the melting point. Also OM 55 is free flowing in molten state and can be encapsulated in various forms.

Why *savE™* OM55?

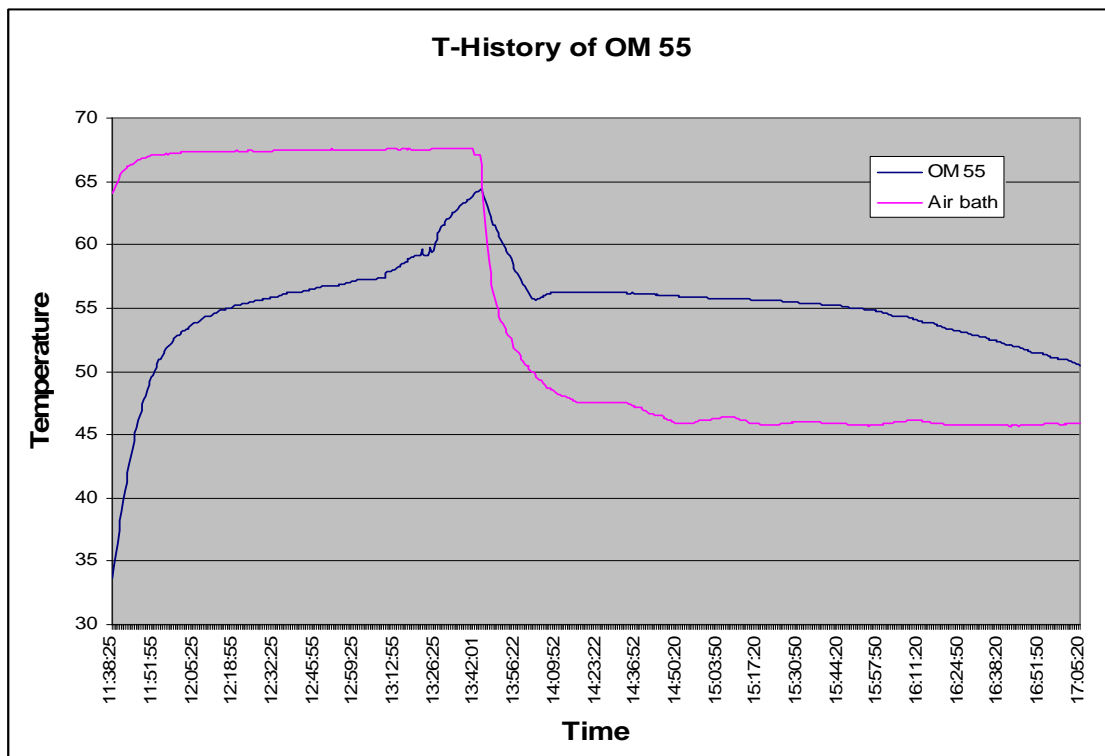
savE™ HS 55 has a phase change temperature of 55°C, a temperature that makes it ideal for many heating/cooling thermal energy applications. Some of its salient features include:

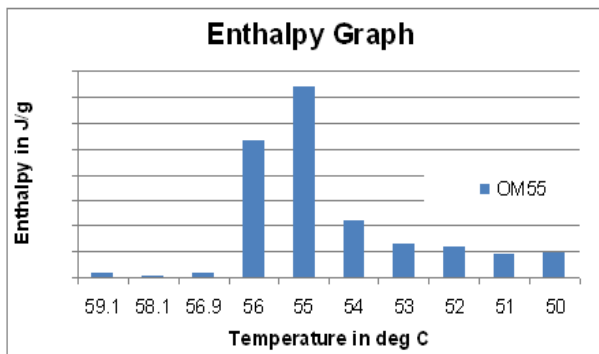
- OM 55 is chemically and thermally stable by using Plus[®] proprietary additives.
- This is mixture of organic fatty acids.

Technical Specification:

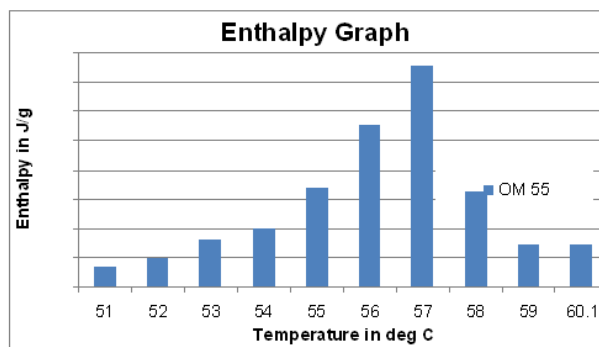
Product : *savE™*
Series : OM 55
Description : Mixture of organic materials
Appearance : White Colour

T-History Test





Enthalpy during cooling



Enthalpy during heating

A 20g sample is taken in a test tube in molten condition and placed in a temperature controlled bath. A temperature sensor is placed in the test tube and bath to record the temperatures using a datalogger. The bath is maintained at 45 °C during the freezing cycle and at around 65 °C during the melting cycle.

Property	Value	Test Method	Test Conditions (if any)
Melting Temp. (°C)	55	T - History	At 65 °C (maximum) Bath
Freezing Temp. (°C)	55	T - History	At 45 °C Bath
Solid Density (kg/m ³)	840	PLUSS® Internal	At 12 °C
Latent Heat (kJ/kg)	210	T- History	from 45° to 65°C
Specific Heat-Liquid (kJ/kg.K)	0.73	Calorimetry	@ 32 °C
Base Material	Organic Chemical		-
Congruent Melting	Yes		-
Sub Cooling	Low	T-History	-
Thermal Stability (cycles)	Under test	PLUSS® Internal	
Max.Operating Temp. (0C)	~80		
Thermal Conductivity (W/m/C)	0.135	PLUSS® Internal	

Pluss Polymers Pvt. Ltd.

610-A, Udyog Vihar, Phase V, Gurgaon – 122016, INDIA Tel: 91-124-4309490 / 91 / 92. Fax: +91.124.4309493

Email: info@pluss.co.in Website: www.thermalenergystorage.in, www.pluss.co.in

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