TECHNICAL DATA SHEET OF sav*E*® OM03

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 aluminum, stainless steel, etc. Pluss® encapsulations are thin enough to give good overall heat transfer coefficient as good as many metals with better mechanical strength.

sav*E*® OM03

savE® - OM03 is an organic chemical based PCM having nominal freezing and melting temperature of 3.5°C. 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.

OM03 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 03 is free flowing in molten state and can be encapsulated in various forms.

Why sav*E*® OM03?

savE® OM03 has a nominal phase change temperature of 3.5°C, a temperature that makes it ideal for many heating/cooling thermal energy applications. Some of its salient features include:

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- OM03 is chemically and thermally stable by using Pluss® proprietary additives.
- This is mixture of organic fatty acids.

Technical Specification:

Product	:	savE®
Series	:	OM03
Description	:	Mixture of organic materials
Appearance	:	Clear liquid at room temp

T-History Test

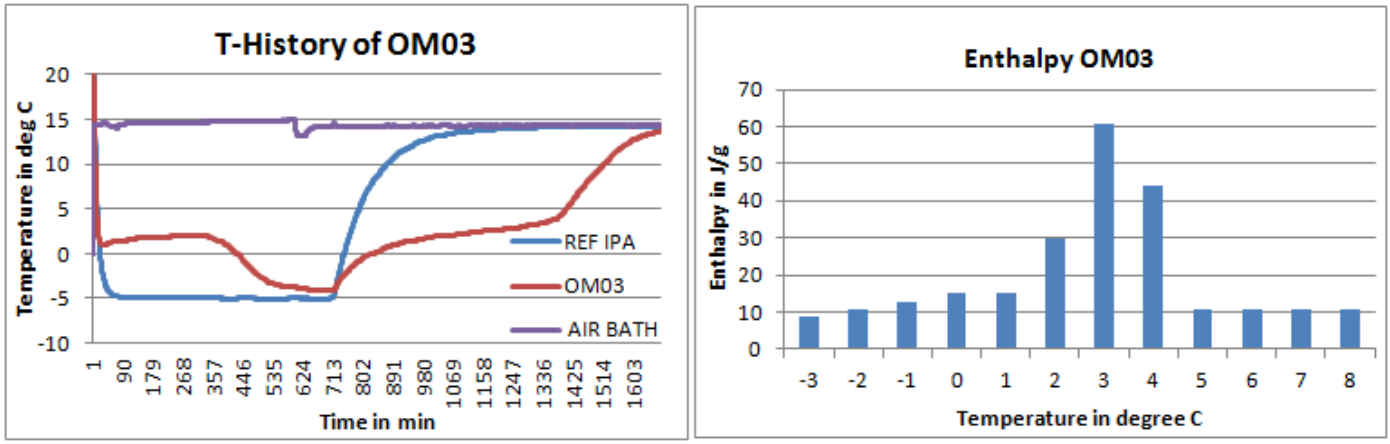

Fig1: T-History graph for OM03 done in air bath

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 -7°C during the freezing cycle and at around 13°C during the melting cycle.

Property	Value*	Test Method	Test Conditions (if any)
Melting Temp (°C)	3.5	PLUSS® T-History	@ 13°C Liquid Bath
Freezing Temp (°C)	3.5	PLUSS® T-History	@ -7°C Liquid Bath
Latent Heat (kJ/kg)	240	PLUSS® T-History	@ -2 to 8°C
Liquid Density (kg/m3)	835	ASTM D891-95	@ 30°C
Solid Density (kg/m3)	935	PLUSS® Internal	@ 0°C
Liquid Specific Heat (kJ/kgK)	3.0	Calorimeter	@ 30°C
Solid Specific Heat (kJ/kgK)	NA		
Liquid Thermal Conductivity (W/mK)	0.146	KD2Pro	@ 30°C
Solid Thermal Conductivity (W/mK)	0.224	KD2Pro	@ -5°C
Base Material	Organic		
Congruent Melting	YES		
Flammability	YES		
Thermal Stability (Cycles)	~2000	PLUSS® Internal	
Maximum Operating Temperature (°C)	120		
Flash Point (°C)	140		

* Nominal Values. Actual values mentioned in Test Certificate

The information given here is meant as a guide to determining suitability of our products for the stated applications. It is based on trials carried out by our laboratories and data selected from literature and shall in no event be held to constitute or imply any warranty. The products are intended for use in industrial applications. The users should test the materials before use and satisfy themselves with regard to contents and suitability in the desired application. Our formal specifications define the limits of our commitment. Recommendation herein may not be construed as freedom to infringe/operate under any third party patents. In the event of a proven claim, our liability is limited only to replacement of our material and in no case shall we be liable for special, incidental or consequential damages arising out of usage of our material. This datasheet is subject to change without notice.