

## Product Description

DM-TIM-15203 is a screen/stencil/syringe printed high thermal conductivity PCM (Phase Change Material) paste. It is designed to provide superior heat transfer between a heat generating component eg power device and heat sink, heat spreader or other cooling device eg fans, heat pipes. The paste incorporates a PCM additive that softens at ~55 deg. C to fill interface voids and cavities providing low thermal interface resistance by elimination of air gaps and improving heater transfer at the interface.

## Product Benefits

- Non-silicone (no migration, leach-out or contamination)
- Use of PCM additives provides excellent thermal transfer at interface by removal of air filled voids.
- Electrically insulative
- Excellent thermal conductivity (2.8 W/m.K)
- Excellent durability (150°C, bake test)
- Stencil/screen printed enabling reduced bond-line thickness (<45 µm) due to small particle filler size, reworkable. Syringe packaging also available

## Applications

Interface for semiconductors requiring low pressure or spring clamp mounting. Consumer electronics, Set-top boxes, IP routers, ECUs Memory and Power modules. CPU to Heat sink, Transistors, Diodes, IGBTs, Rectifiers, LED. TEC modules, Telecommunication hardware and as a gap filler for battery systems.

## Physical Properties

Test	Properties
Viscosity before Phase Change (Pa.s) (Lamy Cone & Plate, 50s <sup>-1</sup> , 25°C)	9-13 (stencil), 25-45 (syringe)
Density (ASTM D792)	2.2 - 2.3 g/cm <sup>3</sup>
Colour	Grey
PCM Softening Temperature	~55°C

## Deposition Properties

Screen/Stencil	Properties
Paste Preparation	Gently stir before use
Print method	Flood-print
Print Speed	100 mm/s
Print Gap	1.5 mm
Squeegee Pressure	~10 Kg
Squeegee	70A Shore Hardness
Screen	Aperture: 90µm Wire: 40µm Mesh: 77T/cm Emulsion: 5µm
Recommended Drying Conditions	125°C (10 mins), 80°C (150 mins), 22°C (24 hrs)
Typical Minimum Bondline thickness	35-40 µm
Print Resolution	250 µm (Line/Space)

Syringe	Properties
Syringe Flow Rate	39 g/min (@90psi)
Recommended Drying Conditions	Depending on application

## Thermal/Electrical Properties

Parameter	Properties
Thermal Conductivity (ASTM D5470)	2.8 W/m.K
Thermal Contact Resistance (ASTM D5470)	$3 \times 10^{-6} \text{ m}^2 \cdot \text{K/W}$
Volume Resistivity (ASTM D257)	$8.8 \times 10^{10} \Omega \cdot \text{cm}$
Dielectric Constant (1 KHz) (ASTM D149)	5.5
Dielectric Strength (ASTM D149 MOD)	>3 kV/mm

## Durability Performance

Parameter	Properties
Thermal Stability (150°C, bake test)	1000 hours
Operating Temperature Range	150°C

The product is RoSH compliant.

## Storage and shelf-life

The paste shelf-life is 24 months from date of shipment. Dycotec Materials cannot assume responsibility for a paste that has not been stored in appropriate conditions or where the pastes have been contaminated following use.

## Safety and Handling

For safe use of this product, please review relevant material and safety datasheet (MSDS).

## Packaging

DM-TIM-15203S is provided in a pot. Package sizes of 250g, 1 Kg and 5 Kg are available.

PCM pastes can also be provided in syringes. DM-TIM-15203-SY-30 (30cc) or 50cc syringes eg DM-TIM-15203-SY-XX (where XX = 30 or 50). Larger syringe sizes available on request.

For more information, please contact:

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