

## Product Description

DM-TIM-15204 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°C to fill interface voids and cavities to provide low thermal interface resistance by elimination of air filled 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 (4.3 W/m.K)
- Excellent durability (150°C, bake test)
- Stencil/screen printed enabling reduced bond-line thickness (<50 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.

## Deposition Properties

Test	Properties
Viscosity before Phase Change (Pa.s) (Lamy Cone & Plate, 50s <sup>-1</sup> , 25°C)	8 - 12 (screen/stencil), 20-40 (Syringe)
Colour	Grey
Density	2.2 - 2.4 g/cm <sup>3</sup>
PCM Softening Temperature	~55°C

## Physical Properties

Screen/Stencil	Properties
Print method	Flood-print
Print Speed	100 mm/s
Print Gap	1.5 mm
Squeegee Pressure	~7-9 Kg
Squeegee	70A Shore Hardness
Screen	Aperture:224µm Wire:100µm Mesh:31T/cm Emulsion:5µm
Recommended Drying Conditions	125°C (10 mins), 80°C (150 mins), 22°C (24 hrs)
Typical Minimum Bondline thickness	<50 µm
Print Resolution	250 µm (Line/Space)

Syringe	Properties
Syringe Flow Rate	63 g/min (@90psi)
Recommended Drying Conditions	Typically not dried, application dependent

## Thermal/Electrical Properties

Parameter	Properties
Thermal Conductivity (ASTM D5470)	4.3 W/m.K
Thermal Contact Resistance (ASTM D5470)	$7.5 \times 10^{-5} \text{ m}^2\text{.K/W}$
Volume Resistivity (ASTM D257)	$8.4 \times 10^{14} \text{ } \Omega\text{.cm}$
Dielectric Constant (1 KHz) (ASTM D149)	6.7
Dielectric Strength (ASTM D149 MOD)	>2.4 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-15204S 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-15204-SY-30 (30cc) or 50cc syringes eg DM-TIM-15204-SY-XX (where XX = 30 or 50). Larger syringe sizes available on request.

For more information, please contact:

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All information reported in the datasheet is for experimental work undertaken in our laboratories and illustrates typical values only. Processing conditions may vary depending on customers' experience and their application requirements and manufacturing process equipment set-up.

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