

# TECHNICAL DATA SHEET

COOLMAG THERMO CONDUCTIVE, S.L.  
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## COOLMAG SA 10

### THERMALLY CONDUCTIVE COMPOUND

#### DESCRIPTION

COOLMAG SA 10 is a thermally conductive composite PDMS-based elastomeric compound of encapsulant two-component system, designed for Power Electronics in Automotive, especially in Electrified Vehicles with a quadruple functionality:

1. Heat Transfer, reduction of hot spots and minimising average temperature of systems.
2. Electric Isolation.
3. Mechanical protection.
4. Flame and fire protection (Retardant and Extinction).

#### FEATURES/BENEFITS

**Low stress:** performs low shrinkage and reduce stress on components as it cures.

**Durable:** it will not depolymerize when heated in confined spaces.

**Environmentally Resistant:** Excellent thermal shock resistance.

**Flame retardant:** COOLMAG SA 10 provides excellent flame retardancy; UL 94 V-O.

#### APPLICATIONS

##### Mixing process

Do not dispose of the liquid from above because of the content of essential ingredients for the proper performance of the product. Thoroughly mix each component individually until a viscous paste appearance is obtained. Verify that the solid has been fully incorporated. Vibrating and degassing recommended.

Mix COOLMAG SA 10 resin component A with COOLMAG SA 10 hardener component B at a 1:1 ratio in weight or volume. For high volume production, may be used an automatic meter/mix/dispense equipment.

For high voltage and other critical applications, vacuuming mixing systems may be appropriate: air may be introduced into the encapsulant system either during mixing or when catalysing the mixture changing the electrical and thermo-conductive properties of the product. Thermal conductivity and electric isolation are best when air bubbles and voids are minimized.

Speed Mixers, centrifugal mixers or vibration mixers are recommended.

##### Applying

Apply COOLMAG SA 10 using hand automatic meter/mix/dispense equipment on a clean surface and without cure inhibiting ingredients, such as amines, sulphur or tin salts.

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If bonding surface is in question, perform a test with a patch of COOLMAG SA 10, setting for the normal curing time.

### Curing

For the proper curing process of the COOLMAG SA 10, after the application needs to be allowed **at room temperature (25°C, 24h), 40min at 80°C or 25 minutes at 125°C**. The time starts when the material has reached the temperature of curing. Parts with large thermal mass and other circumstances may delay material reaching the target temperature.

### TYPICAL PROPERTIES\*

	COOLMAG SA 10 Resin	COOLMAG SA 10 Hardener	COOLMAG SA 10 mixed
<b>Appearance</b>	Beige Liquid	Beige Liquid	Beige Liquid
<b>Viscosity, Brookfield 10 rpm, D94 (cps@ 25°C)</b>	2,000-12,000	2,000-12,000	
<b>Ratio</b>	1	1	
<b>Pot Life (min, 25°C)</b>			15-30
<b>Density, g/cm<sup>3</sup></b>	1.7	1.7	1.7

\* Data is typical and not to be used for specification purposes.

### TYPICAL CURED PROPERTIES\*\*

<b>Thermal Conductivity, W/mk (Hot Disc Transient Method; ISO 22007-2)</b>	1-1.1
<b>Dielectric Strength, kV/mm</b>	10
<b>Dielectric dissipation factor, tan <math>\delta</math> (IEC 62631-2-1:2018)</b>	0.0545 @50Hz
	0.0294 @1kHz
	0.0086 @1MHz
<b>Dielectric constant, <math>\epsilon_r</math>, (IEC 62631-2-1:2018)</b>	4.04 @50Hz
	3.81 @1kHz
	3.5 @1MHz
<b>Hardness (Shore A, UNE-ISO 7619-1:20111)</b>	6-11
<b>Outgas test (ASTM E595)</b>	TML=0.52%; CVCM=0.16%; WVR=0.04%
<b>Coefficient of linear thermal expansion (ISO 11359-2:2021) ppm/K</b>	202

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Cure schedule of 25 minutes at 125°C.

### REGULATIONS

REACH (Regulation (EC) 1907/2006).

RoHS II (Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU).

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### PACKAGING, STORAGE AND SHELF-LIFE

COOLMAG SA 10 is packed in:

- 5 kg (5,5 liters, plastic pail, 215mm diameter x 195mm height)
- 20 Kg (16 liters, metallic drum, 29.2 diameter x 27.3 height)

***Before using COOLMAG SA 10, please refer to the Material Safety Data Sheet (MSDS) and label for safe use and handling instructions.***

***For industrial/professional use only. Must be applied by trained personnel only. Do not use in household applications nor for consumer use.***

The shelf-life of each component is 6 months from date of manufacture, in the unopened original container at 25°C.

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