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.

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 (25ºC, 24h), 40min at 80ºC** or **25 minutes at 125ºC**. 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
Appearance	Beige Liquid	Beige Liquid	Beige Liquid
Viscosity, Brookfield 10 rpm, D94 (cps@ 25ºC)	2,000-12,000	2,000-12,000	
Ratio	1	1	
Pot Life (min, 25ºC)			15-30
Density, g/cm^3	1.7	1.7	1.7

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

TYPICAL CURED PROPERTIES**

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

*****Data is typical and not to be used for specification purposes.***
Cure schedule of 25 minutes at 125ºC.

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 litters, plastic pail, 215mm diameter x 195mm height)
- 20 Kg (16 litters, 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 25ºC.