COOLMAG THERMO CONDUCTIVE, S.L.
Can Ràbia 15, Local 2, 08017 Barcelona (ESPAÑA)
Tel. +34-934809181 Fax. +34-934809187
www.coolmag.net **admin@coolmag.net**

COOLMAGPLAST

Thermally Conductive Compound

DESCRIPTION

COOLMAGPLAST is a thermally conductive, electrically non-conductive PA6 based flame retardant grade. COOLMAGPLAST is lightweight, net-shape moldable and allows design freedom in applications previously restricted to metals and ceramics.

COOLMAGPLAST combines thermal conductivity and electrical insulation in standard pellet form suitable for thermoplastic injection molding and other processes (e.g. extrusion). COOLMAGPLAST is a thermally conductive designed for Power Electronics in Automotive, especially in Electrified Vehicles with a quadruple functionality:

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

TYPICAL APPLICATIONS

COOLMAGPLAST is designed to provide thermal conductivity, electrical safety, hazard protection, mechanical and fire protection for electrical/electronic applications specially designed for:

- **Power Transformers and Semiconductors**.
- **Automotive** and High-reliability **Power Electronics**.
- On-board Chargers (**OBC), Inverters** and **DC/DC converters** in **Electric Vehicles**.

FEATURES/BENEFITS

Thermal conductivity in plastic provides the ability to meet demanding engineering requirements in many applications more cost-effectively than other materials including metals, ceramics, and other plastics. Thermal conductivity was a “missing property” from plastics.

- **High Thermal Conductivity and diffusivity:** COOLMAGPLAST has all properties of RT thermoplastic PA6 based compounds with X7 higher **thermal conductivity** and X10 **thermal diffusivity**, making allowing high heat transfer at low temperature with fast stabilization of temperatures thus minimising hot spots in transients.

- **Environmentally Resistant**: Excellent thermal shock, water-proof, and ageing resistance.

COOLMAG THERMO CONDUCTIVE, S.L.
Can Ràbia 15, Local 2, 08017 Barcelona (ESPAÑA)
Tel. +34-934809181 Fax. +34-934809187
www.coolmag.net **admin@coolmag.net**

- **Flame retardant**: flame retardant feature without halogenated compounds.

Potential benefits of conductive polymers

Metal replacement

- Weight Reduction
- Avoid Metal Manufacture and Machining
- Inherent Corrosion Resistance
- Part Consolidation Opportunities

Electrical Management

- Improve Safety
- Increase Reliability
- Reduce Amplification of Electrical Interference

Electrical Management

- Extend Part and Component Life (reduced device temperature)
- Enable Flexibility in Material Choice
- Efficient Heating and Cooling
- Eliminate Need for Active Cooling

Design flexibility and efficiency

- High Throughput Injection Molding
- Manufacture of Complex Shapes and Geometries
- Rapid Prototyping and Evaluation

COOLMAG THERMO CONDUCTIVE, S.L.
Can Ràbia 15, Local 2, 08017 Barcelona (ESPAÑA)
Tel. +34-934809181 Fax. +34-934809187
www.coolmag.net **admin@coolmag.net**

TYPICAL PROPERTIES

PHYSICAL PROPERTIES

Appearance	Red Solid
Density bed of pellets, g/cm³	*0.80-0.9*
Density solid, g/cm³	*1.9*

THERMAL AND ELECTRICAL PROPERTIES

Flammability	V0
Thermal conductivity (W/mK)*	*2.30*
Dielectric strength (KV/mm)	*6*

**** Hot disc method***

TYPICAL INJECTION MOULDING PROCESSING CONDITIONS

PRE-DRYING	
TIME (h)	4-6
TEMPERATURE (ºC)	*80*

TEMPERATURE

ZONE 1 temperature	**270-280**
ZONE 2 temperature	*270-280*
ZONE 3 temperature	270-280
ZONE 4 temperature	*270-280*
NOZZLE temperature	*270-280*
MOLD temperature	*20-30*

PRESSURE

Back pressure (bar)	70-90

SPEED

Injection speed	Medium-fast

COOLMAG THERMO CONDUCTIVE, S.L.
Can Ràbia 15, Local 2, 08017 Barcelona (ESPAÑA)
Tel. +34-934809181 Fax. +34-934809187
www.coolmag.net **admin@coolmag.net**

PACKAGING, STORAGE AND SELF-LIFE

COOLMAGPLAST is packed in:

- 5 kg
- 20 Kg

COOLMAGPLAST components may release small quantities of hydrogen gas. Do not repacking or store the product in unvented containers and ventilate work areas properly to prevent the accumulation of gas.

Before using COOLMAGPLAST, 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 is 12 months from the date of manufacture, in the unopened original container at 25ºC.

GENERAL DISCLAIMER

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material assubsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the soleresponsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products. The products mentioned herein are not intended for use in medical or dental implants.