Materials matter

Kerafol has developed a range of thermal conductive thermoplastic elastomers for injection moulding

MT 320 (gray) and MT 103 (red) – thermoplastic elastomers from Kerafol

Various grades are available and approved for injection moulding

The switch to electric drive systems and the increasing variety of sensors and electronics raise completely new challenges for the automotive sector. The battery is one of the most critical parts of an EV or PHEV. Perfect temperature control is crucial and therefore, the selection and integration of thermal interface materials is mandatory.

The most common solution is to transfer the heat of the electronic device to a heat sink. To connect these components with each other a gap pad is employed, and this compensates for mechanical tolerances. Due its softness, Kerafol's Keratherm MT 320 is suitable for use as such a gap pad. The material has a thermal conductivity of 2W/mK.

The thermoplastic elastomers are thermally conductive and electrically isolating. These materials enable completely new possibilities in 3D product design. Highly complex structural components can be formed, while it is also possible to implement injection moulding around inserts to realize fixing, protection, isolation and heat-transfer objectives.

Kerafol compounds can be provided in various different grades of hardness. Parts with different mechanical behaviors, and ranging from elastic and soft to rigid, can be realized using special compounds provided by Kerafol.

The material is approved for use with modern injection-moulding machines and designed to offer excellent processability with moderate temperatures and high flow rates. The materials are suitable for battery or electric powertrains.

Properties	MT 320	MT 103
Color	Gray	Red
Thermal conductivity	2W/mK	1.8W/mK
Hardness	Shore A 15-30	Shore A 70-80
Tensile strength	0.2N/mm²	2.0N/mm²
Application temperature	-40°C to +125°C (-40°F to 257°F)	-40°C to +125°C (-40°F to 257°F)
Density	1.91g/cm³ (1.10oz/in³)	1.88g/cm³ (1.09oz/in³)
Flame rating	Equivalent to UL-94 V-0*	UL-94 V-0
Melt flow index	10-20g (0.35-0.71oz) /10 min	4-10g (0.14-0.35oz) /10 min
	170°C (338°F) /2.16kg (4.76 lb)	230°C (446°F) /12.16kg (26.81 lb)

* Tested by Kerafol according to UL-94 parameters

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