Dr.D. Müller AHLHORN

Precision components
made of flexible and rigid materials

Thermally conductive products

Thermicast® TA 25007

Description:

Thermicast® TA 25007 is a flame-retardant, two-component epoxy resin system with high thermal conductivity for encapsulating and encapsulating electronic assemblies. The material has been specially developed for applications where both efficient thermal management and self-extinguishing behavior are required.

Thermicast® TA 25007 offers excellent protection against moisture, dust, salt water, thermal shocks, vibrations, abrasion, static discharges, as well as numerous chemicals. Due to its low shrinkage, low coefficient of thermal expansion and high mechanical strength, Thermicast® TA 25007 is particularly suitable for demanding industrial applications. The material can be cured both at room temperature and accelerated by applying heat.

Features:

Thermicast® TA 25007 has the following properties: Two-component epoxy resin, flame retardant according to UL 94 V-0, thermally conductive potting material, low exothermic heat generation, very good electrical insulation, excellent adhesion to numerous materials, high compressive and tensile strength, solvent-free, high dimensional stability Halogen-free flame retardant fillers, thermally conductive and low shrinkage.

Applications:

Thermicast® TA 25007 is particularly suitable for: Encapsulation of electronic assemblies, Encapsulation of electronic assemblies, Printed circuit boards (PCBs), power electronics, LED modules and LED drivers, power supplies, sensors, control units, telecommunications electronics, industrial electronics, applications with increased heat dissipation and electronics for harsh environmental conditions.

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Managing Director: Dr. Michael Müller | AG Oldenburg: HRB 209026 | Ust. ID-Nr.: DE 295969093
St.-Nr.: 68/207/07677 | Certified according to ISO 9001:2015 and ISO 14001:2015
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Delivery forms: Thermicast® TA 25007 can be supplied in syringes, tubes, cartridges, cups and buckets.

Processing: Component A must be thoroughly stirred before processing in order to completely homogenise any sedimented fillers. Then five volume parts resin are carefully mixed with one volume part hardener. To minimize air pockets, the mixture should rest for about 15 minutes after mixing or vented under vacuum for about 2 minutes. For mixing quantities of more than 500 g of hardener, the processing time can be significantly shortened; for larger quantities, automatic mixing and dosing systems are recommended. The material can be cured at room temperature or accelerated at elevated temperature.

Note: The values given are typical guideline values and serve as technical orientation. They do not represent guaranteed product properties. A suitability test for the respective application is recommended. Technical changes in the course of product development are reserved.

Storage conditions: Thermicast® TA 25007 should be stored at room temperature in dry rooms with protection from sunlight.

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Material base

Feature	Description
Resin system	Epoxy resin
Components	Two-component system
Color Resin (A)	Black
Color Hardener (B)	Clear
Color Mix	Black
Mixing ratio (volume)	5:1
Mixing ratio (weight)	10:1

Processing characteristics

Feature	Unit	Value
Processing time (22 °C)	Hours	1,5
Shelf life	Year	1
Curing at 22 °C	Hours	24
Curing at 65 °C	Hours	2
Curing at 80 °C	Hours	1
Curing at 100 °C	Min.	30

Characteristics of the unhardened system

Feature	Test Method	Unit	Value
Dense mixture	Brookfield Viscometer at 50 rpm with Spindle RV S64	g/cm³	1,7
Density Resin A	Brookfield Viscometer at 12 RPM with Spindle RV S63	g/cm³	1,86
Density Hardener B	Brookfield Viscometer at 100 RPM with Spindle RV S61	g/cm³	0,94
Viscosity mixture (25 °C)	-	mPa·s	10.500

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Feature	Test Method	Unit	Value
Viscosity Component A	-	mPa·s	55.900
Viscosity Component B	-	mPa·s	24

Characteristics of the cured system

Feature	Test Method	Unit	Value
Density	ASTM D 1475	g/cm³	1,70
Hardness	Shore D Durometer	Shore D	91
Tensile strength	ASTM D 638	MPa	22
Compressive strength	ASTM D 695	MPa	123
Breakdown voltage (2.4 mm)	ASTM D 149	KV	37,5
Dielectric strength (2.4 mm)	ASTM D 149	kV/mm	15,5
Breakdown voltage (3.175 mm)	Reference	KV	43,1
Dielectric strength (3,175 mm)	Reference	kV/mm	13,6
Volume resistance	ASTM D 257	Ω·cm	3.0×10^{13}
Volume conductivity	ASTM D 257	S/cm	3.6×10^{-14}
Relative Permittivity (1 MHz)	ASTM D 150-11	-	3,91
Dissipation factor (1 MHz)	ASTM D 150-11		0,019
Continuous use temperature	-	°C	-50 to +150
Short-term peak temperature	-	°C	-55 to +165
Thermal conductivity (25 °C)	ASTM E 1461 92	W/m·K	0,95
Thermal conductivity (50 °C)	ASTM E 1461 92	W/m·K	1
Thermal conductivity (100 °C)	ASTM E 1461 92	W/m·K	0,9
Thermal conductivity	ASTM E 1461 92	mm²/s	0,42
Specific Heat Capacity	ASTM E 1269 01	J/(g· K)	1,3
Glass transition temperature (Tg)	ASTM D 3418	°C	117
Coefficient of thermal expansion below Tg	ASTM E 831	ppm/°C	34
Coefficient of thermal expansion over Tg	ASTM E 831	ppm/°C	116
Flammability	UL 94	-	V-0

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Shear strength

Material	Unit	Value
Stainless Steel	MPa	6,75
Aluminium	MPa	4,75
Copper	MPa	8,45
Brass	MPa	5,05
ABS	MPa	1,95
Polycarbonate	MPa	1,25

Please note: The information in this technical data sheet is based on our current knowledge and experience. Due to the wide range of possible influences during application, it does not exempt the processor and user from carrying out their own tests and trials. A legally binding guarantee of certain properties or suitability for a specific application cannot be derived from our information. Depending on the individual case, we recommend consulting us. The recipient of our products is responsible for observing any industrial property rights and existing laws.

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