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Kisling

TECHNICAL DATASHEET – provisional

7500 + 7920
(Resin + Hardener)

Description
7500 + 7920 is a two component, black, thermal conductive epoxy potting resin. Specially developed for potting applications in electric motors and for power electronics.
Passes the UL94 V-0 test for layer thicknesses ≥ 2 mm.

Advantages
- Thermal conductive around 1.2 W/(m•K)
- Low viscosity reduces air gaps
- Self-levelling
- Solvent-free, good chemical resistance

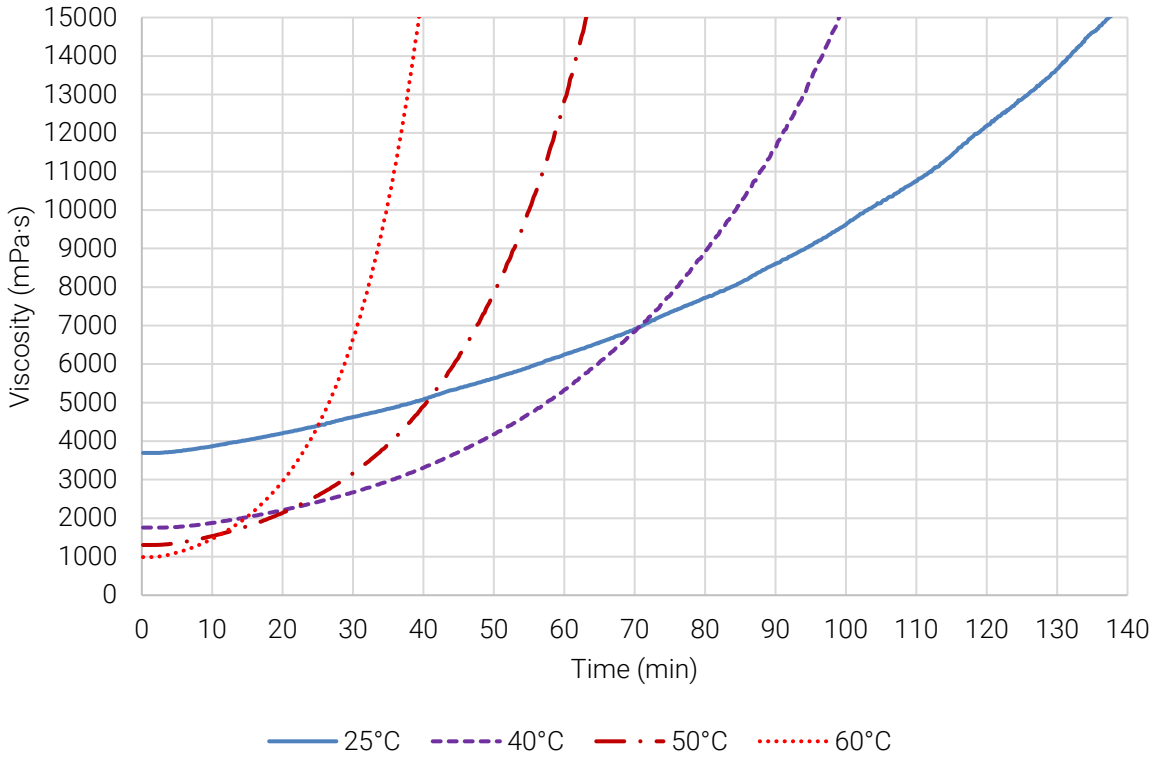
Physical properties (liquid product)

Chemical base			Epoxy resin
Curing System			2-component-system
Mixing ratio by weight			100 : 8.5 (resin : hardener)
Shelf life			12 month at 2 – 30 °C
Colour	Resin	7500	Black
	Hardener	7920	Transparent
	Mixture		Black
Density	Resin	7500	~ 1.87 g/ml
	Hardener	7920	~ 0.95 g/ml
	Mixture		~ 1.80 g/ml
Viscosity at 25°C DIN EN ISO 12092 (Plate 25, shear rate 10 s^{-1})			
	Resin	7500	25'000 – 30'000 mPa•s
Viscosity at 25°C DIN EN ISO 12092 (Cone 75/Plate, shear rate 3000 s^{-1})			
	Hardener	7920	8 – 12 mPa•s
Viscosity mixture DIN EN ISO 12092 (Plate/Plate, 10 rpm)			
	at 25 °C		~ 3'700 mPa•s
	at 40 °C		~ 1'750 mPa•s
	at 50 °C		~ 1'300 mPa•s
	at 60 °C		~ 990 mPa•s

Curing properties

Pot life (doubling of viscosity)		
(DIN EN ISO 12092;	at 25 °C	~ 76 minutes
Plate/Plate, shear rate 10)	at 40 °C	~ 43 minutes
	at 50 °C	~ 25 minutes
	at 60 °C	~ 15 minutes
Pot life (time to reach viscosity of 15'000 mPa•s)		
(DIN EN ISO 12092;	at 25 °C	~ 138 minutes
Plate/Plate, shear rate 10)	at 40 °C	~ 99 minutes
	at 50 °C	~ 63 minutes
	at 60 °C	~ 40 minutes
Gel time (20 gram) at 23 °C		~ 8 hours
Gel time (20 gram) at 40 °C		~ 3 hours 45 minutes
Shrinkage (volume)		~ 2.0 %

Viscosity build-up at various temperatures
DIN EN ISO 12092 (Plate/Plate, shear rate 10)



Physical properties (cured product)

Density acc. to DIN EN ISO 2811-2:2011-06		~ 1.79 g/cm^3
Thermal range		-40 up to 155 °C
Glass transition point (DMA method; cured at 16h, 40°C + 24h, 120°C)		~ 70 °C

Mechanical properties after curing at 80 °C for 3 h, post-curing at 120 °C for 3h

Coefficient of expansion	< Tg	~ 45 ppm/K
	> Tg	~ 100 ppm/K
Thermal conductivity		~ 1.2 W/(m•K)
Shore D hardness		~ 80
Tensile strength DIN EN ISO 527-2		~ 23 N/mm^2
Elongation at break DIN EN ISO 527-2		~ 0.8 %
E-Modulus (bending) DIN EN ISO 178		~ 8'900 N/mm^2

Following mechanical properties after curing at 40 °C for 16 h

Tensile strength DIN EN ISO 527-2	~ 29 N/mm^2
Elongation at break DIN EN ISO 527-2	~ 1 %
E-Modulus (bending) DIN EN ISO 178	3'800 – 4'200 N/mm^2
Comparative tracking index CTI	600
Dielectric constant (ε) at 50 Hz, 23 °C	4.0
Dissipation factor (tan δ) at 50 Hz, 23 °C	0.014
Dielectric strength	33 kV/mm

Material preparation

Due to a sedimentation tendency of the filled resin (component A), careful stirring or homogenisation of the material is always necessary before removing it from the original container. This step is especially important if only one part of the material is taken out of the container. To facilitate stirring and removal, it is recommended to heat the material in the original container to approx. 50°-60°C.
In the dosing system tank, the material should be stirred from time to time to avoid sedimentation and thus errors in the mixing ratio during dosing.
The hardener (component B) is unfilled and does not need to be stirred or homogenised before filling the tank.

Recommendation for processing parameters and curing cycle

Before dosing and mixing the two components, the resin (component A) should be degassed and homogenised in the tank at 60°-65°C and a vacuum of 1-5mbar. The unfilled hardener (component B) should be degassed and homogenised in the tank at 25°-30°C and also at a vacuum of 1-5mbar. The degassing process as well as the homogenisation can be improved considerably by using an agitator.

The following table represents a recommendation of the processing parameters in the process:

Process	Mixing temperature of the potting compound	Parts temperature	Curing cycle
Atmospheric or vacuum potting	55° – 65°C	50° – 70°C	3h @ 80°C + 3h @ 120°C

It is recommended to determine the degree of curing of the potting compound with relevant test methods (e.g. DSC measurement), as different curing cycles as well as the component volume can have an influence on the final properties.

Precautions

For your own safety, please refer to the information of the concerned MSDS.

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