

## 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  $\geq 2$  mm.

#### Advantages

- Thermal conductive ( $\sim 1.2$  W/m<sup>2</sup>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
Viscosity mixture	at 23°C		3'000 – 4'000 mPa•s
(Spindel 5, 50 rpm, 25 °C)	at 40°C		2'000 – 3'000 mPa•s
Density	Resin	7500	$\sim 1.9$ g/ml
	Hardener	7920	$\sim 0.9$ g/ml
Colour	Resin	7500	Black
	Hardener	7920	Transparent
	Mixture		Black

#### Curing properties

Pot life at 23°C	$\sim 100$ minutes
Pot life at 40°C	$\sim 40$ minutes

**Physical properties (cured product)**

Thermal range		-40 up to 165 °C
Glass transition point (DMA method; cured at 16h, 40°C + 24h, 120°C)		~ 70 °C
Coefficient of expansion	< T <sub>g</sub> > T <sub>g</sub>	~ 45 ppm/K ~ 100 ppm/K
Thermal conductivity		~ 1.2 W/mK
Shore D hardness		~ 80
Tensile strength		~ 29 N/mm <sup>2</sup>
Elongation at break		~ 1 %
E-Modulus		3'800 – 4'200 N/mm <sup>2</sup>
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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