Technical data sheet

Resin

Damival® 13683 AN80 / 13482 OB00

- **Polyurethane potting resin**
- **Not CMR classified, MDI free hardener,**
- **Flexible resin, even at low temperature, Shore Hardness A 60**
- **High thermal conductivity: 1.3 W/m.K**
- **Self-extinguishing according to UL94 V0 (3mm)**
- **Thermal resistant up to 150°C**

Description
Damival 13683 with the hardener Damival 13482 is a two parts polyurethane resin free of MDI and not CMR classified. Very soft, flexible and thermal resistant up to 140-150°C according to part design and test conditions.
Compliant with RoHS, ELV 2000/53/CE regulations, free of any SVHC substances according to REACH, and halogen free according to IEC 61249-2-21 and IPC 4101B.

Application
Potting, casting resin for electronic assemblies, sensors, fragile components protection.

Processing
The resin must be stirred prior use, as it contains fillers which may settle during storage. Avoid air introduction during stirring.
Polyurethane resin and hardener are sensitive to moisture during the processing steps (storage, mixing, casting). The parts to be casted should be dry and clean.
A preheating of the parts and/or of the resin up to 40 – 60°C may improve the encapsulation if needed. The preheating will shorten the gel time.
A vacuum processing enables a better flow of the mix, as well as a void-free potting and consequently, enhances the dielectric and mechanical properties.
Mixing can be done by a mixing-metering-dispensing machine or manually according to the mix ratio. In the machine vessels, it is recommended to stir on a regular basis, to avoid the filler settling and consequently, a bad mixing.
The gel time and the curing time depend on the mixed volume, the temperature and the thickness of the layer. Final properties are depending on the curing level.
Minimum curing cycle: 48-72h @ 25°C or 4-5 hours @ 80°C.

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Packaging
Resin: 25 kg, 250 kg metallic drum
Hardener: 5kg, 20 kg, 200 kg metallic drum

Storage conditions – Shelf life
Resin: 12 months in original sealed packaging, at maximum 25°C, protected from moisture. A storage above 25°C will increase the settling. Higher temperature can be achieved during short period of time.
Hardener: 12 months in original sealed packaging, at maximum 25°C, protected from moisture. Higher temperature can be achieved during short period of time.

Health and safety
The products are intended for professional/industrial use only. For any further information, please refer to safety data sheet.

Physical Properties Resin	Test norm	Unit	Value
Colour			Black
Density @ 23°C	ISO 2811-1		1,72
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	13500

Physical Properties Hardener	Test norm	Unit	Value
Colour			Transparent
Density @ 23°C	ISO 2811-1		1,08
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	200

Physical Properties Mix	Test norm	Unit	Value
Mix ratio weight			100/9
Mix ratio volume			100/14
Colour			Black
Density @ 23°C	ISO 2811-1		1,64
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	5600
Viscosity Brookfield @ 50°C	ISO 2555	mPa.s	2000
Gel time 100ml @ 25°C	TECAM	minutes	80
Pot life (initial viscosity x 2) @ 25°C	ISO 2555	minutes	26
Pot life (initial viscosity x 2) @ 50°C	ISO 2555	minutes	12

After curing: Physical Properties	Test norm	Unit	Value
Hardness Shore A	ISO 868		65-61 (0-15 sec)
Self-extinguishing	UL 94		V0 3mm

Thermal Properties	Test norm	Unit	Value
Glass Transition Temperature Tg	TMA	°C	-50
Thermal Conductivity	ASTM D-7984	W/m.K	1.3
Coefficient Thermal Expansion (>Tg)	TMA	µm/m/°C	135
Coefficient Thermal Expansion (<Tg)	TMA	µm/m/°C	33
Max. operating temperature (5mm thickness, 1000h)		°C	150 (without blowing, cracks)

Mechanical Properties	Test norm	Unit	Value
Tensile strength	ISO 527	MPa	1
Young Modulus	ISO 527	MPa	11
Elongation at Break	ISO 527	%	28

Chemical Properties	Test norm	Unit	Value
Water absorption 24h @ 25°C	ISO 62	%	0.1

Electrical Properties	Test norm	Unit	Value
Volume resistivity @ 23°C	IEC 60093	Ω.cm	$2\ 10^{15}$
Volume resistivity @ 23°C after 24h immersion in water	IEC 60093	Ω.cm	$4\ 10^{14}$

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