

Technical data sheet

Resin

Damival® 13682 AW40 / 13481 BB00

- Polyurethane potting resin
- Not CMR classified, MDI free hardener,
- Flexible resin, even at low temperature, Shore Hardness A 46
- Self-extinguishing, UL94 V0 approved (file E108253)
- Approved for railway application: EN45545-2 HL3 for R22-23-24
- Thermal resistant up to 150°C
- High thermal conductivity: 0.95 W/m.K
- Coloured hardener for an easy check of the mix quality

Description

Two parts polyurethane resin free of MDI and not CMR classified. Very flexible and thermal resistant up to 150°C. 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.

Excellent compatibility with solder pastes (Bono test, corrosion factor < 8%) and good resistance to sulfur based gases (H₂S and SO₂). Low smoke emissions and toxicity in case of fire as per EN45545-2 standard.

Application

Potting, casting resin for electronic assemblies, sensors, fragile components protection. Self-levelling potting adhesive for batteries.

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 may improve the encapsulation. A vacuum processing enhances the dielectric and mechanical properties.

Mixing can be done by machine or manually. Easy check of the quality mix thanks to the colored hardener.

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.

Mixing ratio (resin/hardener):

Weight: 100 / 9

Volume: 100 / 13

Packaging

Resin: 25 kg, 250 kg metallic drum, 1500kg container

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			White
Density @ 23°C	ISO 2811		1,63
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	7000-11000

Physical Properties Hardener	Test norm	Unit	Value
Colour			Blue
Density @ 23°C	ISO 2811		1,10
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	250-350

Physical Properties Mix	Test norm	Unit	Value
Colour			Blue
Density @ 23°C	ISO 2811		1,58
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	5000
Viscosity Brookfield @ 60°C	ISO 2555	mPa.s	1000
Gel time 300g @ 25°C	TECAM	minutes	30-50

After curing *: Physical Properties	Test norm	Unit	Value
Hardness Shore A	ISO 868		46 (15 sec)
Self-extinguishing	UL 94		V0
Smoke and Fire rating	EN 45545-2		R22, R23, R24: HL3

Thermal Properties	Test norm	Unit	Value
Glass Transition Temperature Tg	TMA	°C	-60
Thermal Conductivity	ASTM D7984	W/m.K	0,95
Thermal shock resistance	Metal square insert	°C	-60 / +150
Coefficient Thermal Expansion (>Tg)	TMA	µm/m/°C	146
Heat Capacity Cp	ISO 11357-4	J/g.K	1.5

Mechanical Properties	Test norm	Unit	Value
Tensile strength	ISO 527	MPa	1
Young Modulus	ISO 527	MPa	3.4
Elongation at Break	ISO 527	%	53

Chemical Properties	Test norm	Unit	Value
Water absorption 24h @ 25°C	ISO 62	%	0.3
Hydrogen Sulfide resistance	EN 60068-2-43		No change
Sulfur dioxide resistance	EN 60068-2-42		No change

Electrical Properties	Test norm	Unit	Value
Dielectric Strength @ 23°C	IEC 60243-1	KV/mm	20
Dielectric Constant @ 23°C /50Hz	IEC 60250		6
Volume resistivity @ 23°C	IEC 60093	Ω.cm	8 10 ¹⁰
Comparative Tracking Index CTI	IEC 60112	V	>600

*: values measured after curing 16h @ 60°C

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