
Damival® 13682AN90/13481 2K- Polyurethane resin

Damival® 13682AN90/13481 is a very flexible black 2-component resin on base of polyurethane.

Attributes

Damival® 13682AN90/13481 is an alternative for silicone- and epoxy resins for potting and casting as well as coating for electronic assemblies and a self-levelling potting adhesive for batteries.

Damival® 13682AN90/13481 can be cured at room temperature and has the following properties:

- Usable and flexible resin, even at low temperatures of -60 °C
- For railway applications: EN45545-2HL 3
- MDI-free hardener and free of CRM substances
- Flame retardant UL94-V0
- Thermal resistance up to 150 °C
- High thermal conductivity

The properties depend on the curing stage of object.

Standards

- ELV 2000/53/CE regulations
- Halogen free acc. IEC 61249-2-21 and IPC 4101B
- Thermal class B (130 °C)
- UL 94-V0

Delivery forms

The resin is available in 25 kg cans and 250 kg drums (one way).

The hardener is available in 5 and 20 kg cans (one way).

Storage

The resin should be stored in cool and dry places. Storage life of resin and hardener at max. 25 °C ambient temperature is 12 months.

Hardening

Curing at room temperature or accelerated at higher temperatures.

Processing

The resin must be stirred prior to 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:

100:9 weight-%

100:13 vol.-%

Mechanical	Unit of measure	Conditions	Values	Test method
Shore-A-hardness		after 2 months	46	ISO 868
Elongation at break	%		53	ISO 527
Water absorption	%	24h, 25 °C	0.3	ISO 62

Thermal	Unit of measure	Conditions	Values	Test method
Glass transition temperature	°C		-60	TMA
Linear expansion coefficient	µm/m/°C		146	TMA
Thermal conductivity	W/mK		0.95	DIN EN-821-2
Thermal shock resistance	°C		-60/+150	

Electrical	Unit of measure	Values	Test method
Dielectric strength	kV/mm	20	IEC 60243-1
Specific volume resistance at 23 °C	Ω*cm	8 x 10 ¹⁰	IEC 60093
Dielectric constant ε at 50 Hz, 23 °C		6	IEC 60250

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Liquid phase	Unit of measure	Conditions	Values component A	Values component B	Values Mixture	Test method
Mixing ratio	weight-%	weight-%			100:9	
Viscosity	mPas	25 °C	7,000-11,000	250-350	5,000	Brookfield ISO 2555
Viscosity	mPas	60 °C			1,000	Brookfield ISO 2555
Mixture density	g/cm ³	23 °C	1.63	1.10	1.58	
Gel time at 25 °C	min	300 g			30-50	TECAM
Pot life	min	RT ascending to 60 °C			10.5	