ELANTAS

Technical Data Sheet

MICARES® X1087BK RESIN / P978 100:20

Two-components self-extinguishing polyurethane sealant.
Listed system UL 94 V-0, electrical RTI 130◦C

ELANTAS Malaysia Sdn. Bhd.

Lot 550, Jalan Keretapi Lama,
Batu 7 1/2, Jalan Kapar/KU15,
42200 Kapar,
Selangor Darul Ehsan, Malaysia

www.elantas.com

Product Description
Micares® X1087BK is a flexible casting resin system based on polyurethane, consisting of resin and hardener. This two components potting compound designed for use in the electrical engineering and the electronics is cold to thermal-curing. It is solvent free and liquid at ambient temperature (RT). The resin component contains the filler and is degassed.

Area of Application
Flexible, synthetic material. The resin adheres well to metallic and non-metallic materials and resists tracking. Dielectric losses are low. The system is UL 94 V-0 listed.

Processing
The resin and hardener are mixed according to the specified ratio at ambient temperature, preferably using automatic dosing and mixing equipment. If the resin has been stored for a long period of time, it is recommended to stir well the complete content of the container and to check the viscosity before the processing is being started. Formation of lumps has to be prevented by applying of appropriate stirring conditions. The mixture is applied at ambient temperature (above 18° C). The moulds should be treated with a release agent (e.g. MICAFIL 8055) to facilitate subsequent mould removal. For complicated components or if optimal electrical properties are specified, casting under vacuum is required.

Components and moulds generally do not need pre-heating for casting with Micares® X1087BK. Reactivity of the casting compound however, can be changed on request, and or by pre-heating the mould to about 40°C to 80°C, e.g, to reduce cycle - time. Accelerator can be used without adverse effects on the final properties of the resin. We can supply a suitable product separately.

Curing/Post-curing
This resin is especially designed for hardening at ambient temperature. The curing time depends on the resin quantity and temperature. Final curing therefore can be achieved after a few hours or days. Or considerably less at higher temperatures. The self-heating effect of a low exothermal reaction in the resin, depending on the resin quantity, is ussually sufficient to bring it to final hardness in 10-24 hours.

Storage
Polyols and the isocyanate based hardeners can be stored for year one in the original sealed tins stored in a cool, dry place. The hardeners may present an increase in viscosity that does not change the cured system properties. Both components should be stored in appropriate room in their originally sealed containers. Avoid storage outside! The resin is chemically stable. However, before use, the resin must be carefully stirred with a suitable equipment since all resins containing mineral filler tend to build deposits. Stirring with particular care is necessary, when the resin has been stored for a long period of time. Important: The hardener must be kept away from any exposure to humidity. It should always be stored well sealed.

Health & Safety
Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal

Shelf life
This resin has 12 months shelf life and the hardener has 9 months shelf life. Both products should be stored at ambient temperature in original sealed container and out of direct sunlight.

Properties of Micares® X1087 BK resin as supplied

Property	Conditions	Value	Units
Viscosity Brookfield	25 °C	3000 - 6000	mPa.s
Density	25 °C	1.40 -1.45	g/ml
Colour		Black	

Properties of Hardener P978 as supplied

Property	Conditions	Value	Units
Viscosity Brookfield	25 °C	150 - 250	mPa.s
Density	25 °C	1.20 - 1.24	g/ml
Colour		Brown	

Properties after Mixed (RESIN:HARDENER = 100:20)

Property	Conditions	Value	Units
Viscosity Brookfield	25 °C	1800 - 2800	mPa.s
Pot life (doubled initial viscosity)	25 °C	15 - 25	min
Gel time	25°C	45 - 60	min
Demoulding time	25°C	7 - 9	h

Properties in cure condition (24h RT + 15h 60°C)

Property	Conditions	Test Method	Value	Units
Density	25 °C	ASTM D792	1.37 - 1.41	g/ml
Hardness	25 °C	ASTM D 2240	85 - 90 40 - 50	Shore A Shore D
Glass transition (Tg)		ASTM D3418	-5 - +10	◦C
Water Absorption	240h, RT	ASTM D 570	0.2 - 0.3	%
	2h, 100 °C		0.8 ~ 1.0	%
Linear thermal expansion (Tg –10◦C)		ASTM E831	70 - 80	10^{-6} / ◦C
Linear thermal expansion (Tg +10◦C)		ASTM E831	160 - 180	10^{-6} / ◦C
Thermal shock (n◦10 cycles passed)	10 Cycle	Olyphant washer	- 40 - + 170	°C
Flammability	-	UL 94	V0 (13 mm)	-
Max recommended operating temperature		UL746B (RTI Electrical)	130	°C
Thermal Conductivity		ASTM C518	0.50 - 0.60	W/ (m◦K)
Dielectrical Constant	25 °C	ASTM D 150	4.5 - 5.0	-
Loss Factor	25 °C	ASTM D 150	100 - 130x 10^{-3}	-
Volume Resistivity	25 °C	ASTM D 257	3.0 x 10^{14} - 5.0 x 10^{14}	Ω•cm
Dielectrical Strength	25 °C	ASTM D 149	21 - 24	kV/mm
Tensile Strength	-	ASTM D 638	4 - 6	MN/m^2
Elongation at break	-	ASTM D 638	50 ~ 60	%