

Product Information

Micares ®X1087BK R11/P978

2-component flame retardant polyurethane sealant.
Listed System UL 94 V-0,electrical RTI 130°C
100:20

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Application

Micares®X1087BK R11 is a flexible casting resin system based on polyurethane, consisting of resin and hardener. This two component 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.

Processing

It is easy to process at ambient temperature and atmospheric pressure.

Description

Flexible, synthetic materials. The resin adheres well to metallic and non-metallic materials and resists tracking. Dielectric loss are low. The system is RoHS conform (European Directive 2002/95/EC). The system is UL 94V-0 listed.

Instructions

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 R11. 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

low exothermal reaction in the resin, depending on the resin quantity, is usually sufficient to bring it to final hardness in 10-24 hours.

Storage

Polyols and isocyanate based hardeners can be stored for one year 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 Elantas Zhuhai Material Safety Data Sheet (MSDS).

Shelf life

12 months
(in unopened containers stored below 25°C).

SYSTEM SPECIFICATIONS

Property	Conditions	Method	Resin X1087BK R11	Hardener P978	UM
Density at	25°C	IO-10-51 (ASTM D 1475)	1.40~1.45	-	g/ml
Viscosity	25°C	IO-10-51 (ASTM D1475)	3000~6000	150~250	mPas

TYPICAL SYSTEM CHARACTERISTICS

Property	Conditions	Method	Value	UM
Mixing ratio by weight		For 100g resin	100:20	g
Mixing ratio by volume		For 100ml resin	100:25	ml
Resin colour			Black	
Hardener colour			Brown	
Density hardener	25°C	IO-10-51(ASTM D1475)	1.20~1.24	g/ml
Initial mixture viscosity at:	25°C 40°C	IO-10-51 (EN13702-2)	1800~2800 900~1500	mPas mPas
Pot life (doubled initial viscosity)	25°C 40°C	IO-10-51 (EN13702-2)(*)	15~25 8~14	min min
Gelation time	25°C (15ml,6mm)	IO-10-73(*)	1.5~2.5	h
Gelation time	25°C 100ml	IO-10-52a (UNI8701)	30~45	min
Demoulding time	25°C (15ml,6mm)	(*)	6~8	h

TYPICAL CURED SYSTEM PROPERTIES

PROPERTIES DETERMINED ON SPECIMENS CURED:24H RT+15H 60°C

Density 25°C	ASTM D 792	1.37~1.41g/ml
Hardness 25°C Shore A/15 Shore D/15	ASTM D 2240	85~90 55~60
Water absorption (24h RT)	ASTM D 570	0.2~0.3%
Water absorption (2h 100°C)	ASTM D 570	0.8~1%
Linear thermal expansion (T _g -10°C)	ASTM E 831	70~80×10 ⁻⁶ /°C
Linear thermal expansion (T _g +10°C)	ASTM E 831	160~180×10 ⁻⁶ /°C
Thermal shock (n°10cycles passed)	Inserto metallic Olyphant	-40~+170°C
Flammability	UL94-V0	13mm
Max recommended operating temperature	IEC 60085	130°C
Thermal conductivity	ASTM C 518	0.6~0.7w/(m°k)
Dielectric constant at 25°C	ASTM D 150	4.5~5.0
Loss factor at 25°C	ASTM D 150	100×10 ⁻³ ~130×10 ⁻³
Volume resistivity at 25°C	ASTM D 257	3×10 ¹⁴ ~5×10 ¹⁴ Ohm×cm
Dielectric strength at 25°C	ASTM D 149	21~24kV/mm
Tensile strength	ASTM D 638	4~6MN/m ²
Elongation at break	ASTM D 638	50~60%

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