

Technical Data Sheet Epoxy Resin PX439N

Description

PX439N is a thermally conductive flame retardant potting and encapsulating compound. It has a long usable life and may be hot or cold cured. The system exhibits a good surface finish, high electrical strength, excellent thermal conductivity and low cure shrinkage. PX439N is compatible with most circuit board components and materials over a wide temperature range. Adhesion is excellent to most plastics and substrates. The combination of properties and the ease of use of the material will lend itself to a wide range of applications. The flame-retardants in PX439N are of a non-halogen type and do not contain heavy metals. It is available in bulk, kits and twinpack form. The standard colour is white but other colours are available on request.

Features

Excellent thermal conductivity
High electrical insulating characteristics
Non-toxic
Low shrinkage
High adhesion
UL94-V0 @ 3mm
Good chemical and water resistance
RoHS and WEEE compliant

Specification Property

	Resin RX439N	Hardener HX439N	Mixed PX439N
Colour	White	Clear	White
	Grey	Black	Dark Grey
Specific Gravity g/ml	2.0	0.90	1.93
Viscosity mPa.s. @ 25°C	40000	150	6000 - 9000
Mix Ratio by Weight	13.8: 1		
Mix Ratio by Volume	6.2:1		
Usable life (150g @ 25°C)	240 minutes		
Gel time (150g @ 25°C)	360 minutes		

Approvals

RoHS compliant Yes
UL94-V0 Yes
REACH (SVHC concentration) 0%

Cure Schedule

Minimum cure	Full cure
24 hrs @ 25°C	1 week
4 hrs @ 60°C	6 hours
2 hrs @ 80°C	4 hours

The above are typical values and will vary depending on the cured mass and application. Hotter temperatures may be used for faster cure but will result in higher post cure shrinkage and higher cure exotherm. Experimentation and testing is suggested to avoid side effects.

For maximum properties a post cure may be required - call Robnor Technical Service Department for advice.

Typical Properties

Peak Exotherm (150g @ 25°C)	40
Shrinkage % (Volume)	0.3
Thermal conductivity	1.20 W/mK
Operating temperature range*	-40 to +150°C - application & geometry dependent
Dielectric strength	18 kV/mm
Volume Resistivity	12 ohm.cm
Shore D hardness	90
Flame Retardancy	UL94-V0 @ 3mm
Tensile strength	65 mPa
Compressive strength	80 mPa
Deflection temperature	100°C
Co-efficient of expansion	35 - 45 ppm/°C
Loss Tangent	0.045 @ 50 Hz
Permittivity	4.99 @ 50 Hz
Continuous tracking index	>850 V
Water absorption	0.5% (30 days @ 20°C)
Elongation at break	1-3%
Flexural strength	90 - 100

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Packaging

PX439N is available in Bulk, Twinpacks, kits

Availability:

Available through distribution and sales@robnor.co.uk

Twinpacks

Twinpacks are pre-weighed resin and hardener components contained in a tough flexible film, separated by a removable clip and rail.

Once the clip and rail is removed the resin and hardener can be thoroughly mixed within the bag and is then ready for use.

Mixing will normally take ~ 3 minutes depending on the operator and viscosity of the material. Twinpacks are ideal for small to medium production runs, prototyping and on-site or field use.

The twinpack weight/volume may also be tailored to a specific size on request.

For further details please visit www.robnor.co.uk

Bulk Material

PX439N is a filled system and formulated to avoid sedimentation.

However, if sediment is found after storage, this must be re-dispersed in the original container before use.

Failure to do so may result in defective product.

Long-term sedimentation will be aggravated by storage above 25°C and should be avoided.

In bulk or kit form gentle mixing with a paddle or spatula will homogenise the material.

In bulk or kit form evacuation may be necessary for best results.

Kits

In kit form, resin and hardener are provided in separate containers to the correct ratio.

In most cases, pour the hardener into the larger resin container and use it as a mixing vessel.

Stir well using an appropriate mixer until homogeneous.

Note: Incomplete mixing will be characterised by variable/partial cure (even after extended time periods).

Cleaning

All equipment contaminated with mixed material should be cleaned before the material has hardened.

Robnor Resins TS130 is suitable non-flammable cleaning agent, although other solvents may be found suitable.

TS130 will also remove cured material provided it is allowed to soak for a number of hours.

Storage and Shelf Life

Material stored in the original unopened containers under cool dry condition between 10 and 25°C will have a shelf life of at least one-year.

Once used the containers must be kept sealed to prevent effects from water, air or contaminants.

Health and Safety

Epoxy resin systems may cause sensitisation by skin contact or inhalation may be corrosive, harmful or toxic.

It is therefore strongly recommended that skin and eye contact is avoided by the using of appropriate personal protective equipment such as gloves, safety glasses or goggles and overalls. Wash any contamination from the skin immediately and thoroughly and do not eat, smoke or drink in the working vicinity.

Under normal working conditions a good source of ventilation is adequate, however if the material is heated then local exhaust ventilation (LEV) may be required especially for curing ovens.

The above is given as a guide only; please refer to RX/HX439N Health and Safety data or our Technical Service Department for individual/specific advice.

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