Technical Data Sheet
March 2021

PX449TC-1

A thermally conductive flame retardant potting and encapsulating compound

Application

- Bonding and sealing of electrical components
- Most circuit board components
- Plastics and substrates

Key Properties

- High electrical insulating characteristics
- Low shrinkage
- High adhesion
- Good chemical and water resistance
- RoHS and WEEE compliant

Description

- Basic Two-component epoxy system
- Resin RX449TC
- Hardener HX449TC-1

Physical Data (approx. – values)	**Resin**	**Hardener**	**Composite**
Colour	Grey	Black	Dark Grey
Specific Gravity	2.10	1.47	1.90
Viscosity (mPas) @ 25°C	Paste	Semi-thixotropic	Semi-thixotropic

Cure Schedule (150g)	**Working Life**	**Gel Time**	**Light Handling**	**Full Cure**
Temperature	(minutes)	(minutes)	(hours)	(hours)
RT	30-45	180	24	168
60°C	15	30	4	6
80°C	10	20	2	4

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.

Processing

Mix ratio by weight 2.86: 1

Mix ratio by volume 2:1

Typical Properties	**Result**	**Unit**
Peak Exotherm (150g @ 25°C)	40	°C
Shrinkage (Volume)	0.3	%
Thermal conductivity	1.15	W/mK
Operating temperature range*	-55 to +150	°C – (application & geometry dependent)
Dielectric strength	18	kV/mm
Volume Resistivity	1.3 x 10^{12}	ohm.cm
Hardness	75-85	Shore D
Thixotropy	~5	mm
Tensile strength	35	MPa
Compressive strength	25	MPa
Deflection temperature	40	°C
Co-efficient of expansion	55 - 65	ppm/°C
Loss Tangent	0.045	50 Hz
Permittivity	4.99	50 Hz
Comparative tracking index	>850	V
Water absorption (30 days @ 20°C)	0.5	%
Elongation at break	3-6	%
Flammability	Retardant	Not certified
Flexural strength	50-60	MPa

Approvals	
RoHS compliant	Yes
UL94 V-0	No
REACH (SVHC concentration)	Refer to SDS

Packaging & Part Numbers

PX449TC-1 is available in Bulk, Twinpacks, kits and sets

Availability

Available through distribution and sales@robnor.co.uk

Cartridge Mixing	
Available on request	

It is essential for best results that the cartridge is 'balanced' before use to ensure correct mixing.
Loading the cartridge into the gun before attaching the mixer element and pumping the gun to push a small amount of the contents forward will achieve this. Wipe the excess from the cartridge tip and add the static mixer. The cartridge is now ready for use.

Twinpacks	
Available on request	

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 is thoroughly mixed within the bag and is immediately ready for use. Mixing will normally take ~ 2 minutes due to the viscosity; but pay special attention to the corners. 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-resinlab.com

Bulk Materials	
Available on request	

Both resin and hardener are supplied in 5kg, 25kg and 200ltr drums and fully evacuated and ready for use.
Care should be taken to ensure when mixing the resins air is not entrained in the mixture. If this is unavoidable the mixed resin and hardener should be re-evacuated before dispensing. The bulk resin and hardener materials can be dispensed from suitable dispensing machinery, details provided by Fluid Research on request.

Kits	
Available on request	

Kits and Sets are provided in separate containers to the correct ratio.
In Kit form, pour the contents of the smaller container into the larger container and use it as a mixing vessel.
Stir well using an appropriate mixer until homogeneous.

Note: Incomplete mixing will be characterised by erratic or partially incomplete cure even after extended time periods.

Cleaning

All equipment contaminated with mixed material should be cleaned before the material has hardened.
TS130 is a suitable non-flammable cleaning agent, although other solvents may be found suitable.
TS130 will also remove cured material provided it can soak for several hours.

Shelf-life and Storage

24 months @ 25 °C Specialty packaging may be less.

Many epoxy resin systems are prone to crystallization as epoxy resin is a super-cooled fluid. This condition may give the product a gritty or grainy appearance (or hazy in clear products). Products in this state will not usually cure to normal and expected properties. In extreme cases it may appear solid and cured. Fluctuating temperatures (within 5 to 50°C) aggravate this phenomenon. Heating the individual component to 50 to 60°C while stirring can usually restore products to original state. Storage at 25 +/- 10°C is optimum for most products

Some epoxy systems are prone to settling due to high filler content and should be inverted every two to three weeks to reduce the accumulation of the fillers on the bottom of the containers.

Inventory should be rotated on a FIFO (first in, first out) basis.

Health and Safety

Please refer to RX/HX449TC-1 Health and Safety data or our Technical Service Department for individual/specific advice.

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