

PX439N/GY

A thermally conductive flame retardant potting and encapsulating compound

| Application | Key Properties |
|---|--|
| <ul style="list-style-type: none"> Transformers PCB Control Modules General potting and encapsulation | <ul style="list-style-type: none"> Low shrinkage High adhesion UL94 V-0 @ 3mm Good chemical and water resistance |

| Description |
|---|
| <ul style="list-style-type: none"> Basic Two-component epoxy system Resin RX439N/GY Hardener HX439N-1/BK |

| Physical Data (approx. – values) | Resin | Hardener | Composite |
|----------------------------------|-------------|----------|-----------|
| Colour | Grey | Black | Dark Grey |
| Specific Gravity | 2.10 | 0.94 | 1.94 |
| Viscosity (mPas) @ 25°C | 30000-50000 | 110 | 4000-6000 |

| Cure Schedule (150ml) | Working Life | Gel Time | Light Handling | Full Cure |
|-----------------------|--------------|-----------|----------------|-----------|
| Temperature | (minutes) | (minutes) | (hours) | (hours) |
| RT | 100-140 | 130-190 | 24 | 48 |
| 60°C | 20 | - | 4 | 8 |
| 80°C | - | - | 2 | 4 |

*RT is defined as 20-25°C

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 – Contact our technical service department for advice.

| Processing |
|-----------------------------|
| Mix ratio by weight 13.80:1 |
| Mix ratio by volume 6.2:1 |

| Typical Properties | Result | Unit |
|---------------------------------|------------------------------|---------------------------------------|
| Peak Exotherm (150ml @ RT) | 40 | °C |
| Shrinkage (Volume) | 0.3 | % |
| Thermal conductivity | 1.20 | W/mK |
| Thermal expansion | 35-45 | |
| Operating temperature range | -55 to +150 | °C (application & geometry dependent) |
| Dielectric strength | 18 | kV/mm |
| Volume Resistivity | 1 x 10 ¹² | ohm.cm |
| Surface Resistivity | 1 x 10 ¹³ | ohm |
| Hardness | 85-95 | Shore D |
| Flame retardant | Approved (follow link below) | UL94 V-0 |
| 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 |
| Comparative tracking index | >850 | V (Method IEC 60112) |
| Water absorption (30 days @ RT) | 0.5 | % |
| Elongation at break | 1-3 | % |
| Flexural strength | 65 | MPa |
| Tg | 105-110 | °C |

| Approvals | |
|----------------------------|--------------|
| RoHS compliant | Yes |
| UL94 V-0 | E76072 |
| REACH (SVHC concentration) | Refer to SDS |

Packaging

PX439N is available in Bulk, Twinpacks, kits and sets

Availability

Available through distribution, www.resins-online.com and sales@robnor.co.uk

| Twinpack part numbers | |
|-----------------------|----------------|
| PX439N/GY/100 | PX439N/GY/650 |
| PX439N/GY/250 | PX439N/GY/1000 |
| PX439N/GY/500 | |

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 ~ 3 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 Material part numbers | |
|----------------------------|----------------|
| RX439N/GY/5KG | HX439N/BK/1KG |
| RX439N/GY/10KG | HX439N/BK/5KG |
| RX439N/GY/25KG | HX439N/BK/20KG |

Both resin and hardener are supplied 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 and Sets part numbers | |
|----------------------------|------------------|
| PX439N/GY/1KGKIT | PX439N/GY/2KGSET |
| PX439N/GY/10KGKIT | PX439N/GY/5KGSET |
| PX439N/GY/20KGKIT | |

Kits and Sets are provided in separate containers to the correct ratio.

In Kit form, pour the contents of the small 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.

Storage and Shelf Life

24 months at 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/HX439N Health and Safety data or our Technical Service Department for individual/specific advice.

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The results and information above does not constitute a specification and is given in good faith and without warranty. The information is derived from test/or extrapolations believed to be reliable and is quoted for guidance only. The product is offered for evaluation on the understanding the customer satisfies himself that the product is suitable for the intended application by proper evaluation and testing.

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