

Technical Data Sheet

Electrical Insulation

CONAPOXY® FR-1820

Two-Component Epoxy Potting Compound

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CONAPOXY® FR-1820

Product Description

CONAPOXY® FR-1820 is a two-component, filled, flame-retardant epoxy potting system.

Areas of Application

Potting and encapsulation of electronic components, modules, circuit boards, assemblies and related devices.

Features and Benefits

- UL94 V-0
- Short pot life for rapid handling
- Non-abrasive filler for reduced wear of equipment
- RoHS compliant

Application Methods

- Hand-mix Bench Potting / Casting
- Meter-mix Bench Potting / Casting
- Meter-mix Vacuum Potting / Casting

Transportation / Storage

Store at 20 – 30°C / 68 – 85°F in a dry controlled environment out of direct sunlight. This material should be suitable for use stored under these conditions in the original sealed containers for eighteen (18) months from the date of manufacture.

Failure to store the product as recommended above may lead to deterioration in product performance.

This product is sensitive to moisture and atmospheric humidity. Containers, once opened, should be used immediately or blanketed with dry air or nitrogen (CONAP® Dri-Purge) before resealing.

Mix and degas individual components thoroughly prior to use.

CONAPOXY FR-1820 Part A Resin contains fillers and should be well mixed prior to use until the filler is redistributed homogeneously.

Health / Safety

Refer to the Safety Data Sheet.

Typical Properties of Material as Supplied

| Property | Conditions | Value | |
|------------------|------------------------------------|--------------------------------|-----------------------------------|
| | | CONAPOXY® FR-1820 Part A Resin | CONAPOXY® FR-1820 Part B Hardener |
| Viscosity | 25°C / 77°F | 22,000 cP | 1,960 cP |
| Specific Gravity | 25°C / 77°F | 1.65 | 0.98 |
| Color | | Black | Amber |
| Mix Ratio | Parts by weight Parts by volume | 100 100 | 25 40 |
| Flash Point | ASTM D93 | > 94°C > 201°F | > 94°C > 201°F |

CONAPOXY® FR-1820

Typical Properties of Mixed Materials

| Property | Conditions | Value | Units |
|------------------------|---------------------|---------|---------|
| Viscosity (initial) | 25°C / 77°F | 6,900 | cP |
| Work Life (100,000 cP) | 150 g @ 25°C / 77°F | 15 – 18 | minutes |
| Firm Gel Time | 150 g @ 25°C / 77°F | 16 - 30 | minutes |

Regulatory Information

| Property | |
|-----------------|---|
| RoHS Compliance | CONAPOXY® FR-1820 Part A Resin and CONAPOXY® FR-1820 Part B Hardener comply with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 (RoHS 2.0) as amended 31 March 2015. |

Application / Curing Schedule

Mix the FR-1820 Part A and FR-1820 Part B in the ratio specified above until homogeneous. Components may be preheated up to 60°C if reduced viscosity is required. If hand-mixing, degas at >27 in. Hg before use.

Cure 24 - 36 hours at 25°C / 77°F for maximum properties.

The cure schedules above are based on time after the unit reaches the specified temperature and are recommendations only. The user is responsible for determining the optimum cure conditions for his application.

Typical Electrical Properties

| Property | Test Method | Conditions | Value | Units |
|---------------------|-------------|----------------------|------------------------|-------------|
| Dielectric Strength | ASTM D149 | 25°C / 77°F - 1/16" | 490 | volts / mil |
| Dielectric Constant | ASTM D150 | 100 Hz @ 25°C / 77°F | 4.3 | |
| | | 1 kHz @ 25°C / 77°F | 4.2 | |
| | | 1 MHz @ 25°C / 77°F | 3.8 | |
| Dissipation Factor | ASTM D150 | 100 Hz @ 25°C / 77°F | 0.04 | |
| | | 1 kHz @ 25°C / 77°F | 0.02 | |
| | | 1 MHz @ 25°C / 77°F | 0.02 | |
| Volume Resistivity | ASTM D257 | 25°C / 77°F | 4.6 x 10 ¹⁴ | ohm-cm |
| Surface Resistivity | ASTM D257 | 25°C / 77°F | 2.2 x 10 ¹⁵ | ohms / sq. |

CONAPOXY® FR-1820

Typical Physical Properties

| Property | Test Method | Conditions | Value | Units |
|----------------------|-------------|-------------|-------|---------|
| Color | | 25°C / 77°F | Black | |
| Shore Hardness | ASTM D2240 | 25°C / 77°F | D 80 | |
| Tensile Strength | ASTM D412 | 25°C / 77°F | 4880 | psi |
| Ultimate Elongation | ASTM D412 | 25°C / 77°F | 3 | % |
| Linear Shrinkage | ASTM D2566 | 25°C / 77°F | 0.001 | % |
| Moisture Absorption | ASTM D570 | 24 h @ 25°C | 0.3 | % |
| Flammability | UL94 | 4.8 mm | V-0 | |
| Thermal Conductivity | ASTM D5930 | | 0.5 | W / m·K |

The above properties are typical values and are not intended for specification use.

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