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♦ TECHNICAL BULLETIN ♦ TECHNICAL BULLETIN ♦ TECHNICAL BULLETIN ♦

## Epoxy Resin RBC #4200

RBC-4200 epoxy resin is a fire retardant version of the highly filled RBC-4100 thermally conductive epoxy resin. It is designed for applications where thermal conductivity, excellent electrical insulation, high heat distortion and low shrinkage are required. This epoxy resin offers excellent resistance to filler settling during storage and may be heated to 140°F to reduce viscosity prior to adding epoxy hardener catalyst. RBC-4200 can be cured at room temperature or elevated temperatures to fit a variety of applications. Being a thermally conductive epoxy, it can be used as a heat sink for large casting or as an epoxy potting compound or encapsulant for heat generating components.

### HANDLING PROPERTIES:

|                                       |           |
|---------------------------------------|-----------|
| Mixed Viscosity @ 25°C, cps           | 9,000     |
| Shelf Life, (closed Container @ 25°C) | 12 months |

### PHYSICAL PROPERTIES (CURED):

|   |        |
|---|--------|
| Color                                       | Black  |
| Specific Gravity @ 25°C                     | 1.60   |
| Hardness, Shore D                           | 90     |
| Linear Shrinkage, in./in.                   | 0.003  |
| Moisture Absorption 10 Days @ 25°C, %       | 0.18   |
| Izod Impact Strength, ft. lbs./in. of notch | 0.29   |
| Tensile Strength @ 25°C, psi                | 10,000 |
| Compressive Strength @ 25°C, psi            | 25,500 |

### THERMAL PROPERTIES (CURED):

|   |            |
|---|------------|
| Thermal Conductivity, cal/sec/cm <sup>2</sup> /°C/cm X 10 <sup>-4</sup> | 30         |
| Thermal Stability, 1000 Hrs. @ 175°C, % Wt. Loss                        | 0.35       |
| Coefficient of Thermal Expansion, in./in./°C X 10 <sup>-6</sup>         | 27         |
| Heat Distortion Temperature, °C   | 155        |
| Operating Temperature Range, °C   | -65 to 155 |

### ELECTRICAL PROPERTIES (CURED):

|                                    |                    |
|------------------------------------|--------------------|
| Volume Resistivity @ 25°C, ohm-cm  | 6x10 <sup>16</sup> |
| Dielectric Strength, volts/mil     | 480                |
| Dielectric Constant @ 25°C, 100 KC | 5.7                |
| Dissipation Factor @ 25°C, 100 KC  | 0.018              |

(Note: The above properties are typical of a system cured with epoxy hardener #AB-312.)

### RECOMMENDED HARDENERS:

A-110: A rigid, room temperature curing system with limited pot life and fast cure.

A-115: A resilient, low viscosity system with slightly longer pot life, that exhibits excellent resistance to thermal shock.

AB-312: Good resistance to heat, chemicals, thermal and mechanical shock, and good electrical properties at high humidity.

**MIXING INSTRUCTIONS:**

Weigh the desired amount of RBC-4200 epoxy resin into a clean container and combine with recommended epoxy hardener in one of the ratios shown below.

| <b>Hardener</b> | <b>Parts by wt.<br/>per 100 pts. resin</b> | <b>Pot Life<br/>100 grms. @ 25°C</b> |
|-----------------|--|--------------------------------------|
| A-110           | 5.7  | 2 hrs.                               |
| A-115           | 6.0  | 3 hrs.                               |
| AB-312          | 11.0                                       | 5 hrs.                               |

**RECOMMENDED CURE SCHEDULE:**

| <b>Hardener</b> | <b>Cure @ 25°C</b> | <b>Cure @ 65°C</b> | <b>Cure @ 100°C</b> | <b>Cure @ 130°C</b> |
|-----------------|--------------------|--------------------|---------------------|---------------------|
| A-110           | 24 HRS.            | 2 HRS.             | -                   | -                   |
| A-122           | 24 HRS.            | 2 HRS.             | -                   | -                   |
| AB-312          | -                  | 6 HRS.             | 5 HRS.              | 3 HRS.              |