

## Tra-Con Tra-Bond 933-1 Moisture Resistant Chip Encapsulant

Category : Polymer , Thermoset , Epoxy , Filled/Reinforced Thermoset

### Material Notes:

TRA-BOND 933-1 one component, highly filled, electrically insulating epoxy encapsulant is designed for encapsulating microelectronic chips. This epoxy provides excellent environmental and mechanical protection. TRA-BOND 933-1 encapsulant exhibits a longer work life and a lower moisture sensitivity than the anhydride-cured systems. The low coefficient of thermal expansion minimizes stress effects on components and wiring during thermal shock tests. Information provided by Tra-Con Inc.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Tra-Con-Tra-Bond-933-1-Moisture-Resistant-Chip-Encapsulant.php](http://www.lookpolymers.com/polymer_Tra-Con-Tra-Bond-933-1-Moisture-Resistant-Chip-Encapsulant.php)

| Physical Properties | Metric                            | English                           | Comments     |
|---------------------|-----------------------------------|-----------------------------------|--------------|
| Specific Gravity    | 2.10 g/cc                         | 2.10 g/cc                         | Cured        |
| Water Absorption    | 0.11 %                            | 0.11 %                            |              |
| Viscosity           | 360500 cP<br>@Temperature 25.0 °C | 360500 cP<br>@Temperature 77.0 °F | After mixing |

| Mechanical Properties  | Metric   | English  | Comments                               |
|------------------------|----------|----------|----------------------------------------|
| Hardness, Shore D      | 92       | 92       |                                        |
| Adhesive Bond Strength | 17.2 MPa | 2500 psi | Lap shear, alum to alum, 2 hrs @ 150°C |

| Thermal Properties               | Metric                            | English                                      | Comments    |
|----------------------------------|-----------------------------------|----------------------------------------------|-------------|
| CTE, linear                      | 30.0 µm/m-°C                      | 16.7 µin/in-°F                               | Below Tg    |
|                                  | 100 µm/m-°C                       | 55.6 µin/in-°F                               | Above Tg    |
| Thermal Conductivity             | 1.00 W/m-K<br>@Temperature 121 °C | 6.94 BTU-in/hr-ft²-°F<br>@Temperature 250 °F |             |
| Maximum Service Temperature, Air | 150 °C                            | 302 °F                                       |             |
| Minimum Service Temperature, Air | -60.0 °C                          | -76.0 °F                                     |             |
| Glass Transition Temp, Tg        | 124 °C                            | 255 °F                                       | Ultimate Tg |

| Electrical Properties | Metric                                 | English                                | Comments |
|-----------------------|----------------------------------------|----------------------------------------|----------|
| Volume Resistivity    | 1.00e+16 ohm-cm<br>@Temperature 100 °C | 1.00e+16 ohm-cm<br>@Temperature 212 °F |          |
| Dielectric Constant   | 6.1                                    | 6.1                                    |          |

| Electrical Properties | Metric | English | Comments |
|-----------------------|--------|---------|----------|
| Dissipation Factor    | 0.0070 | 0.0070  |          |

| Chemical Properties              | Metric  | English | Comments |
|----------------------------------|---------|---------|----------|
| Ionic Impurities - Na (Sodium)   | 55 ppm  | 55 ppm  |          |
| Ionic Impurities - Cl (Chloride) | 300 ppm | 300 ppm |          |

| Processing Properties | Metric              | English             | Comments |
|-----------------------|---------------------|---------------------|----------|
| Cure Time             | 30.0 min            | 0.500 hour          |          |
|                       | @Temperature 150 °C | @Temperature 302 °F |          |
|                       | 120 min             | 2.00 hour           |          |
|                       | @Temperature 125 °C | @Temperature 257 °F |          |

| Descriptive Properties              | Value | Comments |
|-------------------------------------|-------|----------|
| Color                               | Black |          |
| Water Extract Conductivity umhos/cm | 290   |          |
| Weight Loss %                       | 0.67  | At 300°C |
| Working Life, months                | 2     | At 25°C  |

## Contact Songhan Plastic Technology Co.,Ltd.

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