# R-2188

## Silicone potting and encapsulating elastomer

### DESCRIPTION

- Two part, Clear, 1:1 Mix ratio (A:B)
- Pourable and self-leveling
- Cures at room temperature
- Tested per UL-94 and passed V-1

### APPLICATION

- For potting, encapsulating and coating of modules, relays, and a variety of AC/DC converters including high power and planar packages
- Provides protection from moisture, dust and contaminants
- Increases resistance to shock and vibration
- Low viscosity allows the potting of complex geometries without the entrapment of air
- Pot life is compatible with processes that require dispensing or coating with Part A and B combined
- Dielectric properties compatible with many devices and increase breakdown voltage of device

### PROPERTIES

| Typical Properties | Average Result | Standard | NT-TM |
|---|---|---|---|
| **Uncured:** | | | |
| Appearance, Part A | Translucent | ASTM D2090 | 002 |
| Appearance, Part B | Translucent | ASTM D2090 | 002 |
| Viscosity, Part A | 13,000 cP | ASTM D2196 | 001 |
| Viscosity, Part B | 9,000 cP | ASTM D2196 | 001 |
| Work Time (Pot Life) | 8 hour minimum | - | 008 |
| **Cured: 30 minutes at 150 °C (302 °F)** | | | |
| Durometer, Type A | 20 | ASTM D2240 | 006 |
| Tensile Strength | 475 psi (3.3 MPa) | ASTM D412 | 007 |
| Elongation | 350 % | ASTM D412 | 007 |
| Tested per UL-94 * | Passed V-1 | - | - |
| Dielectric Constant, 100 Hz* | 2.9 | ASTM D150 | 906 |

| Typical Properties | Average Result | Standard | NT-TM |
|---|---|---|---|
| Dielectric Constant, 100 kHz* | 2.6 | ASTM D150 | 906 |
| Dissipation Factor, 100 Hz* | 0.0001 | ASTM D150 | 906 |
| Dissipation Factor, 100 kHz* | 0.0001 | ASTM D150 | 906 |
| Dielectric Strength * | 500 Volts/mil (19.5 kV/mm) | ASTM D149 | 243 |
| Ionic Content, Cl* | < 5 ppm | MIL STD 883E | - |
| Ionic Content, K* | < 3 ppm | MIL STD 883E | - |
| Ionic Content, Na* | < 1 ppm | MIL STD 883E | - |
| Thermal Gravimetric Analysis (TGA)*, | - | ASTM E1131 | 259 |
| Weight loss 30°C to 380°C | 5% | - | - |
| Weight loss 30°C to 750°C | 60% | - | - |
| Glass Transition Temperature (Tg)* | -45°C | ASTM E831 | - |
| Coefficient of Thermal Expansion (-25°C to 250°C)* | 320 µm/m°C | ASTM E831 | - |
| Moisture Absorption, % gain after 168 hour exposure* at 85°C (185°F) / 85% R.H. | 0.2% | JEDEC J-STD-020C | 202 |
| % Linear Shrink (1 hour at 100°C)* | 2.5% | - | 059 |
| % Linear Shrink (1 hour at 150°C)* | 3.8% | - | 059 |
| Recommended Cure Times based on 90% cured via ODR** | - | - | 069 |
| Cure time at 70°C | 4 hours | - | - |
| Cure time at 100°C | 30 minutes | - | - |
| Cure time at 150°C | 20 minutes | - | - |

*These properties NOT tested on a lot-to-lot basis. Please contact NuSil Technology for assistance and recommendations in establishing particular specifications.

**Recommended cure times are based on the testing performed via ODR (Oscillating Disk Rheometer). However the cure times can be affected by multiple factors, including, but not limited to, quantity of silicone used, time to heat the entire device or mold, and whether the material is cured in pre-heated oven or not.

## INSTRUCTIONS FOR USE

### Mixing and Vacuum Deaeration

Combine Part A and Part B in a 1:1 mix ratio prior to use. Airless mixing, metering or dispensing equipment is recommended for production operations. If mixing by hand, take care to minimize air entrapment and check the work time prior to mixing and dispensing.

Remove air entrapped during mixing by common vacuum deaeration procedure, observing all applicable safety precautions. Slowly apply full vacuum to a suitable container of at least four times the volume of material being de-aired. Hold vacuum until bulk deaeration is complete. For further information please see Mixing and De airing Addition Cure Silicones.

### Substrate Considerations

R-2188 cures in contact with most materials common to electronic assembles. Exceptions include butyl and chlorinated rubbers, some Tin condensation cure silicones and unreacted residues of some curing agents. Units being encapsulated or potted should be clean and free of surface contaminates. Containers and dispensers being used should also be clean and dry. Cure inhibition can usually be prevented by washing all containers with solvent or volatizing the contaminant by heating. For further information please see Avoiding Cure Inhibition.

Note: Some bonding application may require the use of a primer. NuSil Technology's CF1-135 silicone primer is recommended.

## ROHS AND REACH COMPLIANCE

Please contact NuSil Technology's Regulatory Compliance department with any questions or for further assistance.

## SPECIFICATIONS

Do not use the properties shown in this technical profile as a basis for preparing specifications. Please contact NuSil Technology for assistance and recommendations in establishing particular specifications.

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| Packaging | Warranty |
|---|---|
| 50 mL Side-by-Side Kit<br>400 mL Side-by-Side Kit<br>2 Pint Kit (910 gram)<br>2 Gallon Kit (7.28 kg)<br>10 Gallon Kit (36.4 kg) | 12 Months |

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