

SILCOOL™ TIA219R / TIA219RP Thermally Conductive Silicone Potting Materials with Adhesion

Product Description

SILCOOL™ TIA219R and TIA219RP thermal potting silicones are two-component, thermally conductive materials typically used for potting and gap filling. When cured at room temperature or quickly with heat, they cure to a thermally conductive rubber and adhere well to various types of materials such as metals, plastics, glass and ceramics, without the use of primers. The flowability of SILCOOL TIA219R and TIA219RP allows them to conform to complex 3-dimensional shapes and cavities, filling voids and thereby helping to create a thermal path to remove heat. TIA219R and TIA219RP cure to build a soft rubber that helps relieve stress on critical electronic components. TIA219RP is the prolonged pot life version of TIA219R.

Key Features and Typical Benefits

- Soft, elastomeric rubber properties
- Convenient 1:1 mix ratio by weight
- Outstanding stress relief
- Heat accelerated or room temperature cure
- Excellent thermal conductivity
- Resistance to temperature extremes
- Primerless adhesion to many types of substrates
- Non-corrosive to metal & low volatile
- UL 94 V-0 (equivalent)

Typical Physical Properties

| UNCURED PROPERTIES | | TIA219R(P) Part A | TIA219R(P) Part B |
|--------------------------|-------|-------------------------------|----------------------|
| Appearance | | Gray | White |
| Mix ratio by weight | | 1 : 1 | |
| Viscosity*1 | Pa·s | 12 | 9 |
| Viscosity*1 after mixing | Pa·s | 11 | |
| Work Life @ 23°C | Hours | 0.5 (TIA219R) / 10 (TIA219RP) | |
| Cure Time @ RT | Hours | 24 | |
| Cure Time @ 70°C | Hours | 0.5 | |
| Cure Time @ 120°C | Hours | 0.3 | |

| CURED PROPERTIES (30 minutes @ 70°C) | | |
|--------------------------------------|-------------------|---------------------|
| Appearance | | Gray |
| Density (23°C) | g/cm ³ | 2.7 |
| Hardness (Type E) | | 50 |
| Hardness (Type A) | | 25 |
| Tensile strength | MPa | 0.6 |
| Elongation at break | % | 150 |
| Adhesion strength*2 | MPa | 0.6 |
| Thermal conductivity*3 | W/mK | 1.9 |
| CTE | ppm/K | 150 |
| Volume resistivity | MΩ·m | 1.1x10 ⁶ |
| Dielectric strength | kV/mm | 21 |
| Volatiles (D3-10) | ppm | 200 |

*1 measured at 20 rpm at 23°C

*2 Aluminum Lap Shear

*3 hot wire measurement

Typical properties are average data and are not to be used as or to develop specifications.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

- Store in a cool, dry place out of direct sunlight & keep out of the reach of children
- Materials such as water, sulfur, nitrogen compounds, organic metallic salts, phosphorus compounds, etc. contained in the surface of the substrate can inhibit curing. A sample patch should always be conducted before proceeding to determine compatibility.
- Stir Parts A and B prior to mixing, as filler sedimentation may occur during storage.
- Wear eye protection when handling uncured rubber as it can irritate eyes. In case of eye contact, immediately flush eyes well with water and contact a physician.
- Maintain adequate ventilation in the work place at all times.
- Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at www.momentive.com or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

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