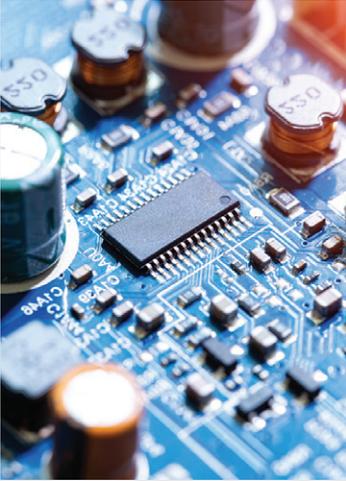


NOVATHERM

Novagard Thermal Management Materials

Novagard silicone-based thermal management materials offer excellent heat dissipation over a wide temperature and humidity range making them particularly useful for protecting electronics in extreme conditions. Along with thermal conductivity, they provide adhesion, rapid assembly, and environmental protection. Furthermore, Novagard silicones contain no solvents, are resistant to ozone and ultraviolet degradation, and can be customized to meet the exact dispense and performance requirements for your specific application.



- Thermal management
- Environmental protection
- Vibration damping
- Shock absorption
- High surface wet-out
- Superior flow characteristics
- Electronics grade
- Excellent surface wetting to minimize interfacial resistance



Performance characteristics of our silicone formulations can be adjusted based on specific application requirements. Rheology, hardness and other physical properties, adhesion, and cure profiles can all be customized as needed.

Novagard is proud to serve the following industries:

- Automotive and Electric Vehicles
- Batteries and Control Modules
- Consumer Electronics
- Power Supplies & Power Systems
- Solid State (LED) Lighting
- Telecommunications Equipment
- Sustainable Energy
- Medical Electronics

NOVAGARD

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ISO 9001:2015 QMS (with Design) | IATF 16949:2016 QMS (with Design)
Certified Women's Business Enterprise

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Novagard Thermal Management Materials

| Properties | Test Method | 600-303 | 600-305 | 600-307 | 600-310 | 600-315 |
|--|--------------|-----------------------|-------------------------|-------------------------|----------------------------|----------------------------|
| Uncured* | | | | | | |
| Form | | Flowable | Flowable | Flowable | Paste | Paste |
| Cure Chemistry | | 2-part, Addition Cure | 2-part, Addition Cure | 2-part, Addition Cure | 2-part, Addition Cure | 2-part, Addition Cure |
| Appearance Part A Part B | | White Pink | White Pink | White Pink | White Salmon | White Sky Blue |
| Viscosity (cP) Part A 10s-1 Part B 10s-1 Mixed | ASTM D5099 | 280 200 240 | 4,000 4,400 4,200 | 6,600 5,800 6,200 | 27,000 42,000 34,500 | 65,000 64,000 64,500 |
| Density at 25°C (g/cm ³) | ASTM D792 | 1.3 | 1.7 | 1.8 | 2.2 | 2.6 |
| Mixed Ratio | | 1:1 | 1:1 | 1:1 | 1:1 | 1:1 |
| Working Time (Pot Life) | | >1 hour | >1 hour | >1 hour | >1 hour | >1 hour |
| Cured* | | | | | | |
| Durometer Shore A | ASTM D2240 | 42 | 52 | 53 | 63 | 75 |
| Appearance (Mixed) | | Light Pink | Pink | Pink | Salmon | Sky Blue |
| Dielectric Strength (kV/mm) | ASTM D149 | 5.2 | 8.4 | 6.9 | 8.8 | 7.8 |
| Dielectric Constant at 100 Hz | ASTM D150 | 3.5 | 4.1 | 4.1 | 4.9 | 5.9 |
| Volume Resistivity (Ω cm) | ASTM D257-14 | 8.2x10 ¹⁵ | 6.4x10 ¹⁶ | 3.6x10 ¹⁵ | 9.9x10 ¹⁵ | 6.8x10 ¹⁵ |
| Dissipation Factor at 100 Hz | ASTM D150 | 0.0410 | 0.0012 | 0.0030 | 0.0020 | 0.0034 |
| Thermal Conductivity , TC (W/mK) | ASTM D5470 | 0.3 | 0.5 | 0.7 | 1.0 | 1.5 |
| *The values outlined reflect testing that was conducted under laboratory conditions, actual results may vary. The information provided in the above table is not intended for use in preparing specifications. Please consult manufacturer for additional information. | | | | | | |

| Properties | Test Method | 600-320 | 600-325 | 600-330 | 600-335 |
|--|--------------|----------------------------|-----------------------------|----------------------------|----------------------------|
| Uncured* | | | | | |
| Form | | Paste | Paste | Paste | Paste |
| Cure Chemistry | | 2-part, Addition Cure | 2-part, Addition Cure | 2-part, Addition Cure | 2-part, Addition Cure |
| Appearance Part A Part B | | White Dark Blue | White Green-Yellow | White Yellow | White Dark Gray |
| Viscosity (cP) Part A 10s-1 Part B 10s-1 Mixed | ASTM D5099 | 45,000 40,000 42,000 | 110,000 60,000 85,000 | 57,000 38,000 50,000 | 27,000 28,000 27,500 |
| Density at 25°C (g/cm ³) | ASTM D792 | 2.8 | 3.3 | 3.0 | 3.1 |
| Mixed Ratio | | 1:1 | 1:1 | 1:1 | 1:1 |
| Working Time (Pot Life) | | >1 hour | >1 hour | >1 hour | >1 hour |
| Cured* | | | | | |
| Durometer Shore A | ASTM D2240 | 58 | 76 | 70 | 68 |
| Appearance (Mixed) | | Blue | Lime Green | Yellow | Gray |
| Dielectric Strength (kV/mm) | ASTM D149 | 11.0 | 8.0 | 11.0 | 11.0 |
| Dielectric Constant at 100 Hz | ASTM D150 | 6.4 | 6.2 | 7.0 | 7.2 |
| Volume Resistivity (Ω cm) | ASTM D257-14 | 1.4x10 ¹⁶ | 1.3x10 ¹⁶ | 1.1x10 ¹⁶ | 9.1x10 ¹⁵ |
| Dissipation Factor at 100 Hz | ASTM D150 | 0.0052 | 0.0565 | 0.0110 | 0.0133 |
| Thermal Conductivity , TC (W/mK) | ASTM D5470 | 2.0 | 2.5 | 3.0 | 3.5 |
| *The values outlined reflect testing that was conducted under laboratory conditions, actual results may vary. The information provided in the above table is not intended for use in preparing specifications. Please consult manufacturer for additional information. | | | | | |