



DOWSIL™ TC-5150 Thermally Conductive Gap Filler

Description

DOWSIL™ TC-5150 Thermally Conductive Gap Filler is a high performance, one-part, non-curable, dispensable thermally conductive gap filler with 5 W/mK thermal conductivity, and like other Dow™ thermally conductive compounds, is made with silicone materials heavily filled with heat conductive metal oxides. This combination promotes high thermal conductivity and high temperature stability. The compounds are designed to maintain a positive heat sink seal to improve heat transfer from the electrical device to the heat sink or chassis, thereby increasing the overall efficiency of the device.

Uses / Applications

- Designed to dissipate heat from electronics to a heat sink providing a reliable cooling solution for a wide variety of applications

Benefits

- High thermal conductivity
- Easy to dispense
- Form-in-place
- No additional curing process required
- Low thermal impedance
- Reworkable
- Room temperature storage

Physical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test ¹	Property	Unit	Result
CTM 0176	One or Two Part		One part
CTM 0176	Curing Condition		Non-curable
CTM 0176, ASTM D284	Color		Blue
CTM 0947, ASTM D4892	Specific Gravity	g/cc	3.47
CTM 1163, ISO 22007-2	Thermal Conductivity	W/m·K	5
ASTM D5470	Thermal Resistance at 1 mm	K·cm ² /W	1.91
CTM 1094, ASTM D4287	Viscosity at 1 s ⁻¹	Pa·s	2360
CTM 1094, ASTM D4287	Thixotropic Index (0.1 s ⁻¹ / 1 s ⁻¹)		8.1

1. CTM: Corporate Test Method
ASTM: American Society for Testing and Materials
ISO: International Standardization Organization

Physical Properties (Cont.)

Test	Property	Unit	Result
CTM 0364	Extrusion Rate (6 oz cartridge, tapered tip w/ 3 mm orifice, 90 psi)	g/min	43
CTM 1139, ASTM D150	Dielectric Constant – 1M Hz		5.39
CTM 1139, ASTM D150	Dissipation Factor – 1M Hz		0.132
CTM 0114, ASTM D149	Dielectric Strength	kV/mm	10.3
CTM 0249, ASTM D257	Volume Resistivity	ohm-cm	2.36 x 10 ¹⁴

Processing and Application Guidelines

DOWSIL™ TC-5150 Thermally Conductive Gap Filler is a one-part non-curing material that can be used without additional curing steps and is reworkable. It exhibits excellent vertical hold behavior while allowing efficient automated dispensing due to its thixotropic nature.

Application Methods

One-part materials do not require mixing and can be applied as is with automated dispense.

Useful Temperature Ranges

For most uses, silicone dispensable thermal materials should be operational over a temperature range of -40 to 125°C (-40 to 257°F) for long periods of time. However, at both the low and high temperature ends of the spectrum, behavior of the materials and performance in particular applications can become more complex and require additional considerations. Factors that may influence performance are configuration and stress sensitivity of components, cooling rates and hold times, and prior temperature history. At the high-temperature end, the durability of the cured silicones is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain useable.

Solvent Exposure

In general, the product is resistance to minimal or intermittent solvent exposure, however best practice is to avoid solvent exposure altogether.

Storage

DOWSIL™ TC-5150 Thermally Conductive Gap Filler should be stored at room temperature and does not require refrigerated storage. The product should be stored in its original packaging with the cover tightly attached to avoid any contamination. Store in accordance with any special instructions listed on the product label. The product should be used by the indicated Exp. Date found on the label.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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