



## Technical Data Sheet

# DOWSIL™ TC-5021 Thermally Conductive Compound

Gray, flowable, non-curing thermally conductive compound

### Features & Benefits

- Flowable
- Non-curing material - no need for curing ovens
- Capable of achieving thin Bond Line Thickness
- Low thermal resistance
- High thermal conductivity
- Conducts heat away from sensitive PCB system assembly components

### Composition

- Thermally conductive filler
- Polydimethylsiloxane matrix

### Applications

- DOWSIL™ TC-5021 Thermally Conductive Compound is designed to provide efficient thermal transfer for the cooling of MPU in servers, desktops, and notebooks.

### Typical Properties

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

Property	Unit	Result
One or Two-part		One
Color		Gray
Viscosity	cP	82,650
	mPa-sec	82,650
	Pa-sec	82.6
Specific Gravity (Uncured)		3.47
Bleed	%	0.15
NVC (Non Volatile Content)	%	99.8
Thermal Conductivity	btu/hr-ft-°F	1.9
	W/mK	3.3
Thermal Resistance at 40 psi	°C-cm <sup>2</sup> /W	0.2
Dielectric Strength	volts/mil	125
	kV/mm	5
Dissipation Factor at 1 kHz		0.06
Dielectric Constant at 1 kHz		8.1
Volume Resistivity	ohm-cm	3.7E+11

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DOWSIL™ TC-5021 Thermally Conductive Compound

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Description	<p>Dow thermally conductive compounds are grease like silicone materials, heavily filled with heat-conductive metal oxides. This combination promotes high thermal conductivity, low bleed and high-temperature stability. The compounds are designed to maintain a positive heat sink seal to improve heat transfer from the electrical device or PCB system assemblies to the heat sink or chassis, thereby increasing the overall efficiency of the device. PCB system assemblies are continually designed to deliver higher performance. Especially in the area of consumer devices, there is also a continual trend towards smaller, more compact designs. In combination these factors typically mean that more heat is generated in the device. Thermal management of PCB system assemblies is a primary concern of design engineers. A cooler device allows for more efficient operation and better reliability over the life of the device. As such, thermally conductive compounds play an integral role here. Thermally conductive materials act as a thermal “bridge” to remove heat from a heat source (device) to the ambient via a heat transfer media (i.e. heat sink). These materials have properties such as low thermal resistance, high thermal conductivity, and can achieve thin Bond Line Thicknesses (BLTs) which can help to improve the transfer of heat away from the device.</p>
Solvent Exposure	<p>In general, the product is resistance to minimal or intermittent solvent exposure, however best practice is to avoid solvent exposure altogether.</p>
Usable Life And Storage	<p>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.</p>
Handling Precautions	<p>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 <a href="http://WWW.CONSUMER.DOW.COM">WWW.CONSUMER.DOW.COM</a>, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.</p>
Limitations	<p>This product is neither tested nor represented as suitable for medical or pharmaceutical uses.</p>
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How Can We Help You Today?	<p>Tell us about your performance, design, and manufacturing challenges. Let us put our silicon-based materials expertise, application knowledge, and processing experience to work for you.</p> <p>For more information about our materials and capabilities, visit <a href="http://www.consumer.dow.com">www.consumer.dow.com</a>.</p> <p>To discuss how we could work together to meet your specific needs, go to <a href="http://www.consumer.dow.com">www.consumer.dow.com</a> for a contact close to your location. Dow has customer service teams, science and technology centers, application support teams, sales offices, and manufacturing sites around the globe.</p>

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