



Technical Data Sheet

DOWSIL™ TC-5628 Thermal Compound

Description A one-part, thermally conductive grease.

Uses / Applications

- One-part, thermally conductive grease

Benefits

- Excellent thermal conductivity
- Low thermal resistance
- Improved pump out resistance and slump resistance
- Dispensed or printed through a variety of manual or automated processes

Physical Properties

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

Test ¹	Property	Unit	Result
	One or Two-part	-	One
	Color		Blue
ASTM D4287	Viscosity CP52 @ 5RPM	cP	72,400
ASTM D70	Specific Gravity (Uncured)	-	3.26
ASTM D2240	Curing Time at 100°C	Min	60
ASTM D2240	Durometer	Shore 00	45
ISO 22007-2	Thermal Conductivity, Hot Disk	W/mK	4.0
ASTM D5470	Thermal Resistance, 40psi	cm ² K/W	0.178
	BLT (Bond Line Thickness)	µm	40
ASTM D149	Dielectric Strength	kV/mm	12
ASTM-D257	Volume Resistivity	Ω.cm	3.6E+12
UL94	Flammability		V-0
UL94	RTI temperature	°C	150
	Shelf life at ≤25 °C	Month	12

1. ASTM: American Society for Testing and Materials.
ISO: International Standardization Organization
UL: Underwriters Laboratories

Processing and Application Guidelines

DOWSIL™ brand 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 positive heat sink contact to improve heat transfer from the electrical/electronic device to the heat sink or chassis, thereby increasing the overall efficiency of the device. Electronic devices are continually designed to deliver higher performance. Especially in the area of consumer electronics, 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 electronic devices 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.

Application Methods

- Dispense
- Stencil print
- Screen print

Solvent Exposure

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

Useful Temperature Ranges

For most uses, silicone adhesives should be operational over a temperature range of -45 to 200°C (-49 to 392°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. For low temperature performance, thermal cycling to conditions such as -55°C (-67°F) may be possible, but performance should be verified for your parts or assemblies. 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 silicone elastomer is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain usable.

Compatibility

Certain materials, chemicals, curing agents and plasticizers can inhibit the cure of addition cure gels. Most notable of these include: organotin and other organometallic compounds, silicone rubber containing organotin catalyst, sulfur, polysulfides, polysulfones or other sulfur containing materials, unsaturated hydrocarbon plasticizers, and some solder flux residues. If a substrate or material is questionable with respect to potentially causing inhibition of cure, it is recommended that a small scale compatibility test be run to ascertain suitability in a given application. The presence of liquid or uncured product at the interface between the questionable substrate and the cured gel indicates incompatibility and inhibition of cure.

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.

dow.com

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