Technical Data Sheet

DOWSIL™ TC-3065 Thermal Gel

One-part, thermally conductive re-workable gel.

Features & Benefits

- One-part, gray, dispensable and curable thermal gel
- Re-workable after curing
- Room temperature curing or accelerated at 60°C or higher for shorter curing time
- Resists humidity and other harsh environments without cracking and slumping
- Low volatile content
- Potential application to replace fabricated thermal pad
- 60 g/min extrusion rate to support easy auto dispensing process
- 6.5 W/mk thermal conductivity to help power device thermal design

Composition

- One-part
- Silicone gel

Applications

- Thermal interface material used for heat dissipation on optical transceivers
- Dispensed or screen printed to various thickness and shapes for general thermal
- Management of PCB system assemblies

Typical Properties

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

Test[1]	Property	Unit	Result
	One or Two-part		One
CTM 0176	Color		Gray
CTM1094R	Viscosity (10 s^{-1})	Pa•s	200
CTM 0364A	Extrusion Rate	g/min	60
CTM0436	Curing Time at 100°C	min	30
CTM 0099B	Durometer	Shore 00	60
ASTM D412	Tensile Strength	MPa	0.2
ASTM D412	Elongation	%	20
CTM 0022	Specific Gravity (Cured)	g/cm^3	3.45
ASTM D1824	Working Time at 25°C	days	5

1. CTM: Corporate Test Method, copies of CTM's are available on request.
ASTM: American Society for Testing and Materials

Form No. 11-4093-01-1220 S2D

Typical Properties (Cont.)

Test	Property	Unit	Result
CTM 0114D	Dielectric Strength	kV/mm	10
CTM 0249	Volume Resistivity	ohm*cm	7 E+13
CTM1388B	Thermal Conductivity (Hot Disk)	W/mK	6.5
	Shelf Life from Date of Manufacturing at -10°C	months	12
CTM1107	BLT (Bond Line Thickness)	micron	150
CTM0010	NVC	%	99.9

Description

DOWSIL™ TC-3065 Thermal Gel is one-part, heat cure silicone based thermally conductive gel with good re-workability. It's supplied as non-flowable paste and can be pressed lower to 150 um thickness in thermal management application. It can be cured to elastic pad with certain tensile strength and elongation which can make sure the material can be peeled off easily and completely without residue in rework process.

Application Methods

- Automated dispensing
- Stencil printing

Processing/ Curing

DOWSIL™ TC-3065 Thermal Gel can be dispensed or screen printed to various thickness and shapes and cured within 30 min at 100°C, or 1 hour at 80°C. To accelerate the curing speed, higher curing temperature can be adopted, for example the material can be cured within 20 minutes at 120°C.

Before application, the suggested thawing time is 1 hour at room temperature (23°C).

Working Time (Open Time)

DOWSIL™ TC-3065 Thermal Gel starts curing slowly after being dispensed on substrates at room temperature. The viscosity increases over time, which means higher pressure is needed when pressing the gel to a certain thickness. The working time depends on the highest pressure applied on the devices allowed by the application. Generally the working time is over 5 days at room temperature.

Adhesion and Re-workability

In the manufacture of PCB system assemblies, it is often desirable to salvage or reclaim damaged or defective units. DOWSIL™ TC-3065 Thermal Gel has a good balance of adhesion and re-workability. On one hand, the adhesion strength to general substrates of thermal devices like heat sink (Aluminum, Al/Mg alloy) and encapsulated chip (epoxy surface) can resist the mechanical and climate reliability ageing test, on the other hand, the cured material can be peeled off completely without residue in rework process.

Useful Temperature Ranges

For most uses, silicone adhesives should be operational over a temperature range of -45 to 150°C 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.

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.

Usable Life and Storage

The product should be stored in its original packaging with the cap tightly fastened to avoid any contamination. Stored below -5°C during Transportation. Stored at -10°C or below in plant. DOWSIL™ TC-3065 Thermal Gel has a shelf life of 12 months after the manufacturing date.

Packaging Information

Multiple packaging sizes are available for this product. Please contact your local distributor or Dow representative for information on packaging size and availability.

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.

How Can We Help You Today?

Tell us about your performance, design, and manufacturing challenges. Let us put our silicon-based materials experience, application knowledge, and processing experience to work for you.

For more information about our materials and capabilities, visit **dow.com**.

To discuss how we could work together to address your specific needs, go to **dow.com** 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.

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Form No. 11-4093-01-1220 S2D