

Thermal interface - wet dispensed

Dow Corning[®] TC-5021 Thermally Conductive Compound

Non-curing, thermally conductive silicone paste, light gray color

FEATURES

- Low thermal resistance
- High thermal conductivity

BENEFITS

- Use advanced silicone treating agents to reduce pump out

POTENTIAL USES

- Excellent economical thermally conductive solution for low to mid-range applications

APPLICATION METHODS

- Apply with squeegee through stencil or screen
- Spread out with spatula

TYPICAL PROPERTIES

Specification Writers: Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

<u>Property</u>	<u>Unit</u>	<u>Value</u>
Viscosity	cP	85750
	mPa-sec	85750
	Pa-sec	85.7
Thixotropy	NA	1.7
Specific Gravity (Uncured)	-	3.48
Bleed	%	0.15
NVC (Non Volatile Content)	%	99.8
Thermal Conductivity	btu/hr ft degF	5.709
	W/mK	3.3
Thermal Resistance	cm ² /W	0.2
Dielectric Strength	volts/mil	125
	kV/mm	5
Dissipation Factor @ 1kHz	NA	0.06
Dielectric Constant @ 1kHz	NA	8.3
Volume Resistivity	ohm*cm	3.7E11
Shelf Life @40C	months	24

HOW TO USE

Allow printed grease pad to dry open for 24 hours before assembly. Dry time allows the small amount of carrier fluid to evaporate.

DESCRIPTION

Dow Corning thermally conductive compounds are greaselike silicone materials, heavily filled with heat-conductive metal oxides. This combination promotes high thermal conductivity, low bleed and high-temperature stability. The compounds resist changes in consistency at temperatures up to 177°C (350°F), maintaining a positive heat sink seal to improve heat transfer from the electrical/electronic device to the heat sink or chassis, thereby increasing the overall efficiency of the device. Long-term, reliable protection of sensitive circuits and components is important in many of today's delicate and demanding electronic applications. With the increase in processing power and the trend toward smaller, more compact electronic modules, the need for thermal management is growing. Thermally conductive silicones function as heat transfer media, durable dielectric insulation, barriers against environmental contaminants and as stress-relieving shock and vibration absorbers over a wide temperature and humidity range. In addition to sustaining their physical and electrical properties over a broad range of operating conditions, silicones are resistant to ozone and ultraviolet degradation and have good chemical stability. Good heat transfer is dependent on a good interface between the heat producing device and the heat transfer media. Silicones have a low surface tension that enables them to wet most surfaces, which can lower the thermal contact resistance between the substrate and the material.

PREPARING SURFACES

All surfaces should be thoroughly cleaned and/or degreased with solvents such as Dow Corning® brand OS Fluids, naphtha, mineral spirits, or methyl ethyl ketone

(MEK). Light surface abrasion is recommended whenever possible, because it promotes good cleaning and increases the surface area for bonding. A final surface wipe with acetone or IPA is also useful to remove residues that may be left behind by other cleaning methods. On some surfaces, different cleaning techniques will give better results than others. Users should determine the best techniques for their applications.

SUBSTRATE TESTING

Due to the wide variety of substrate types and differences in substrate surface conditions, general statements on adhesion and bond strength are impossible.

COMPATIBILITY

Certain materials, chemicals, curing agents and plasticizers can inhibit the cure of addition cure adhesives. 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.

SOLVENT EXPOSURE

Although highly filled silicones such as those discussed in this data sheet are generally more resistant to solvent or fuel exposure, standard silicones are intended only to survive splash or intermittent exposures. Testing should be done to confirm performance of the adhesives in the application and under the specified environmental conditions.

REPAIRABILITY

In the manufacture of electrical/electronic devices it is often desirable to salvage or reclaim damaged or defective units. With most non-silicone rigid potting/encapsulating materials, removal or entry is difficult or impossible without causing excessive damage to internal circuitry. Silicones from Dow Corning can be selectively removed with relative ease, any repairs or changes accomplished, and the repaired area repotted in place with additional product. To remove silicones, simply cut with a sharp blade or knife and tear and remove unwanted material from the area to be repaired. Sections of the adhered material are best removed from substrates and circuitry by mechanical action such as scraping or rubbing and can be assisted by applying Dow Corning OS Fluids.

STORAGE AND SHELF LIFE

Shelf life is indicated by the "Use By" date found on the product label. For best results, Dow Corning thermally conductive materials should be stored at or below the maximum specified storage temperature. Special precautions must be taken to prevent moisture from contacting these materials. Containers should be kept tightly closed and head or air space minimized. Partially filled containers should be purged with dry air or other gases, such as nitrogen. Any special storage and handling instructions will be printed on the product containers.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area. For further information, please see our website, www.dowcorning.com, or consult your local Dow Corning representative.

LIMITATIONS

These products are neither tested nor represented as suitable for medical or pharmaceutical uses.

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