Electronics
Solutions

DOW CORNING

Dow Corning® Brand TC-5022 Thermally Conductive Compound

Non-curing thermally conductive compound

Description

Dow Corning® TC-5022 Thermally Conductive Compound is a high-quality thermally conductive compound for mid to high-end applications. TC-5022 is formulated with advanced silicone fluid that interacts with thermally conductive filler particles to form a highly stable matrix that helps to prevent pump-out and other common failure mechanisms. The high thermal conductivity of TC-5022 makes it ideal for a variety of applications where heat must be dissipated across varying bond line widths.

Key Features

- Thermal conductivity: 4.0 W/m·K
- Excellent thermal performance
- Pump-out resistant
- Achieves thin bond lines under low pressure
- High stability and reliability

Potential Uses

Thermal interface material for a variety of medium- to high-power devices in electronics and other industrial applications

Typical Applications

- Microprocessors
- Flip-chip BGAs
- LED assemblies
- A variety of other high-end devices

Application Methods

- Screen print
- Stencil print
- Dispense

Material Properties

Property	*Dow Corning*® TC-5022 Typical Values
Description	Thermally conductive compound
Form	Non-curing compound
Viscosity average	65,000 - 100,000 cP
Specific gravity	3.23
Non-volatile content at 120°C	99.9%
Volatile content at 120°C	< 0.05%
Color	Gray
Thermal resistance (ASTM D5470) @ 40 psi	0.061°C-cm^2/W
Thermal conductivity	4.0 W/m·K
Volume resistivity	4.85 x 10^{10} ohm-cm
Dielectric strength	115 volts/mil
Dielectric constant at 1 kHz	18.05
Dielectric dissipation factor at 1 kHz	0.5621
Container size	1 kg tub
Mix ratio	1-part (no mixing)

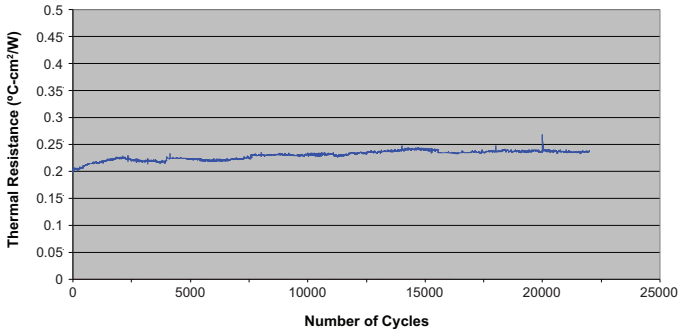
Important Features and Benefits

Features	Benefits
Excellent thermal conductivity; low thermal resistance	• Improved thermal performance
Advanced silicone fluid interacts with filler particles to create a more stable matrix	• Resists pump-out • Great stability and reliability

Performance Data

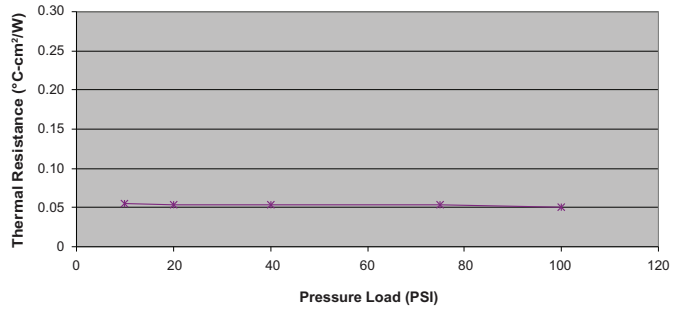
Power Cycle on TTV Tester Graph

The data in this graph was generated on a mobile computing tester with a bare silicon die against a heat sink. The heating and flexing of the bare silicon die is intended to produce an environment where pump-out will occur. This data demonstrates that there is little difference in thermal resistance between beginning thermal performance and 20,000+ cycles, indicating reliability against pump-out and other performance degradation.



TC-5022 Thermal Reliability, TTV-Power Cycle Test
(Each cycle: 8 minutes heating, 2 minutes cooling, ~92ºC to r.t.)

TC-5022 Thermal Resistance and Pressure ASTM D5470



Learn More

For additional information or Material Safety Data Sheets on the complete line of *Dow Corning*® thermal interface management solutions, please call your local sales office, visit ***dowcorning.com/electronics***, or send a message to ***electronics@dowcorning.com***.

Front images: AV11148, AV02251

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AMPM350-09 Form No. 11-1688A-01

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