Technical Data Sheet

DOWSIL™ TC-5550 Thermally Conductive Compound

Gray, thixotropic, non-curing thermally conductive compound

Features & Benefits

- Good pump-out resistance for bare die application
- High thixotropy
- One part material – no cure required
- Solvent free formulation – provides material stability
- Easy application – screen and stencil printable
- High thermal conductivity
- Achieves thin Bond Line Thickness (BLT)
- Low thermal resistance

Composition

- Thermally conductive fillers
- Siloxane polymer matrix

Applications

- DOWSIL™ TC-5550 Thermally Conductive Compound is designed to provide efficient thermal transfer for the cooling of electronic modules, and good pump-out resistance especially in bare die application

Typical Properties

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

Test[1]	Property	Unit	Result
ASTM E284-97	Color		Gray
ASTM E284-97	One or Two Part Material		One
ASTM D4440-15	Viscosity at High Strain	Pa-s	120~170
	Thixotropic Index		~8
ASTM D1298	Specific Gravity	g/ml	2.6
	Non-volatile Content, 48 Hours at 125°C	%	99.96
ISO 22007-2:2015 Hot Disk	Thermal Conductivity	W/mK	5.0
ASTM D5470	Thermal Resistance at 40 psi (~25 N/cm^2)	°C-cm^2/W	0.05
	Bond Line Thickness at 40 psi (~25 N/cm^2)	mm inch	0.02 0.0008

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

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Description

DOWSIL™ TC-5550 Thermally Conductive Compound is grease like material that is highly loaded with thermally conductive fillers in a silicone matrix. This combination promotes high thermal conductivity, low pump-out and high-temperature stability. The compound is designed to maintain a positive heat sink seal to improve heat transfer from an electrical device or PCB system assembly to a heat sink or chassis especially for consumer devices, there is also a continual trend towards smaller and 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 compound plays an integral role here. Thermally conductive material acts as a thermal "bridge" to remove heat from a heat source (device) to the ambient via a heat transfer media (i.e. heat sink). This material has properties such as low thermal resistance, high thermal conductivity, and thin Bond Line Thicknesses (BLTs) which can help to improve the transfer of heat away from the device. Thermal compound has advantages over other Thermal Interface Materials (TIMs) due to anti pump-out, ease of application on to heat sinks (screen printing), and ease of re-work.

Solvent Free Formulation

DOWSIL™ TC-5550 Thermally Conductive Compound is a solvent free formulation so that the material remains stable after the container is opened. This means the viscosity of the material will not change over time which allows for consistent and easy screen printing.

Application Methods

- Screen print
- Stencil print
- Dispense

Solvent Exposure

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

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.

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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.

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