

Technical Data Sheet

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Safety Data Sheets, product photos, and other information can be obtained by visiting www.chemtools.com.au



Thermalle™ SILVER-FROST Silver Thermally Conductive Grease (Heatsink Compound)

PART NUMBER	AVAILABLE SIZE*
CT-TM002-2ML-BL3	2ml Tube (Pack of 3)
CT-TM002-05PT	5ml Syringe
CT-TM002-10PT	10ml Syringe
CT-TM002-50T	50g Tube
CT-TM002-250G	250g/6oz Semco Cartridge

*Available colours and/or sizes may change without notice.

DESCRIPTION

Thermalle™ SILVER-FROST Silver Thermally Conductive Grease is an exceptional thermal interface paste which greatly amplifies conductivity in applications with small voids or uneven surfaces. It is a premium, highly reliable and stable material which has been specially formulated for efficient heat transfer and the prevention of current leakage. SILVER-FROST is non-flowing and silicone-free with low bleed paste and a high concentration of silver particles and other proprietary fillers that offer improved conductivity by occupying and sealing voids between mating surfaces.

SILVER-FROST dissipates heat efficiently and effectively to reduce overheating and component failure across a wide operating temperature range. It offers versatility in its suitability to both sensitive medical devices through to complicated automotive, aerospace, and defence equipment. Compatibility also includes CPU and GPU cooling, LED lighting, motors, transformers, and general industrial electronics.

FEATURES & BENEFITS

Excellent Thermal Conductivity

Contains a high concentration of silver particles to fill in small gaps and voids. Improves conductivity by smoothing mating surfaces to manage and dissipate heat more efficiently for a reduction in risk of component failure.

Wide Operating Temperature

Versatile and suitable for a variety of applications ranging from -50°C to +185°C. Stable and highly reliable for sensitive equipment in vital industries where overheating could have profound effects on safety and accuracy of results.

High Electrical Insulation

The addition of silver helps to prevent current leakage and ensures reliable performance of electronic devices and heat generating applications, particularly where complicated electronics are involved.

Low Bleed

Silicone-free no-flow formulation ensures no separation and no migration over time for longer lasting performance.

APPLICATION

Applying thermally conductive grease (also known as a thermal paste or a thermal compound) is an important step in ensuring efficient heat transfer between the CPU and the heatsink.

Detailed instructions follow on how to apply the product for optimal heat dissipation resulting in a high performing CPU.

Prepare the Work Area

Ensure the work area is clean and well-lit. Turn off computer power and unplug the power unit to ensure safety.

Gather Materials

Materials required for application include Thermalle™ SILVER-FROST (TM002), isopropyl alcohol, cotton swabs, and a lint free cloth.

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Cleaning the CPU and Heatsink

Using a cotton swab dipped in isopropyl alcohol, clean the top surface of the CPU and the base of the heat sink. Ensure they are free from old thermal paste residue, and other contaminants. Allow to dry completely before continuing.

Applying the Product

TM002 must be applied in a thin, even layer to facilitate optimum heat transfer. While application methods may differ, the following 'pea-sized dot method' is commonly used:

- Place a small, pea-sized dot on the centre of the CPU.
- Using a plastic card, or a gloved finger, spread the paste evenly over the entire surface of the CPU. Ensure full coverage without making the layer too thick.

Attaching and Securing the Heatsink

Carefully place the heatsink on top of the CPU, aligning the mounting holes. Gently press down on the heatsink to spread the paste evenly between both parts. Follow the manufacturer's instructions to secure the heatsink in place. This typically involves tightening screws or clips in a diagonal pattern to ensure even pressure across the CPU.

Final Checks – An Important Step

Inspect the heatsink to make sure it is securely attached with no gaps or excess thermal paste spilling over the edges. Once satisfied, connect the heatsink fan to the motherboard and ensure all connections are secure.

Resuming Power

Once the heatsink is securely attached, the computer can be plugged in and powered on. Monitor the CPU temperature to ensure that the applied paste is effectively transferring heat from the CPU to the heatsink.

TECHNICAL DATA

Thermo-conductive Constituent	Metal oxide and silver
Carrier	Mineral Oil
Appearance	Silver, viscous paste
Odour	None, odourless
Thermal Conductivity @ 65°C (ASTM D7896)	0.35 watts/m-K
Thermal Diffusivity (ASTM D7896)	0.1624 mm ² /s
Volume Specific Heat (ASTM D7896)	2.024 MJ/m ³ K
Thermal Resistivity (ASTM D5334)	2.86 Km/W
Volume Resistivity @ 23°C +/- 2°C @500V (ASTM D257)	3.6x10 ¹⁰ ohm-cm
Dielectric Constant @ 35°C (ASTM D150)	4.477 @ 1,000 cps / 3.388 @ 10,000 cps
Dissipation Factor @ 35°C (ASTM D150)	0.2506 @ 1,000 cps / 0.1240 @ 10,000 cps
Dielectric Strength per SAE AS8660 (ASTM D149)	2.86 kV
Breakdown Voltage	286 volts/mil
Density	1380 Kg/m ³
Temperature Range	-50 to +185°C
Weight Loss	-0.6% after 200hrs @ 150°C
Bleed	0.4%
Permittivity	2.5 to 3.5 @ 1kHz
Shelf Life	>3 years when stored under recommended conditions

FIRST AID & SAFETY PRECAUTIONS

Always refer to Safety Data Sheet/s before use. Use proper Personal Protection Equipment. Do not get in eyes, on skin, or on clothing. Use with adequate ventilation. Avoid breathing fumes. Keep away from heat, sparks, open flames, and hot surfaces. This product may produce adverse health conditions, ranging from minor skin irritation to serious systemic effects. It should not be used, stored, or transported until the handling precautions and recommendations as stated in the Safety Data Sheet/s for this product have been fully understood by all persons who will work with the material.

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STORAGE & TRANSPORT

Refer to Safety Data Sheet/s for recommendations. As a general precaution, keep containers tightly closed, protect from sunlight, and do not expose to temperatures exceeding 50°C. Store in a cool, dry place at room temperature (5 – 40°C). Do not return any unused material to its original container. Containers should be secured and stored upright during transit.

DISCLAIMER

Every effort has been made to ensure the information provided in this document is accurate at the date of publication. Chemtools® Pty Ltd expressly recommends that the user make his/her own assessment to determine the suitability of the product for its intended purpose prior to application. Chemtools® Pty Ltd shall not be responsible for loss, damage, or injury, resulting from the reliance upon, or failure to adhere to, any recommendations or information contained herein; nor from abnormal use of the material; nor from any hazard inherent in the nature of the material.