

Gelease™ MG-125

Thermally Conductive Silicone Gel Interface Material

Description:

Gelease™ MG-125 is a one-component, metal-filled, thermally conductive gel. This Gelease™ formulation achieves thicknesses of 1-2 mils in order to minimize the thermal pathway and maximize heat flow. Gelease™ MG-125 provides extremely efficient heat transfer from Flip Chip devices (including microprocessors), PPGAs, BGAs, microBGAs, DSP chips, graphic accelerator chips, and other high wattage electronic components. The crosslinked structure of Gelease™ MG-125 inhibits bleed, separation, and pump-out that are typically observed in many thermal interface materials.

Gelease™ MG-125 can be applied like traditional thermal grease by using high speed dispensing or printing equipment. Gelease™ MG-125 exhibits excellent flow properties and dispenses easier than most thermal greases. A short, 150°C in-line or conventional oven cure will complete the polymerization process.

Key Features and Benefits:

- + Low Thermal Resistance/High Thermal Conductivity
- + Thin Bondlines of 1-2 mils
- + Easy to Apply & Reworkable
- + Good Moisture Resistance & High Volume Resistivity
- + Excellent Temperature Cycle/Shock Performance
- + Low Viscosity/Good Wetting
- + Resist Pump-Out & Cracking

Typical Uncured Properties:

Viscosity @ 25°C (cps)	
10 RPM	76,400
20 RPM	57,600
ASTM D 2393	
Working Life @ 25°C (hours)	8
Cure Schedule @ 150°C (minutes)	10
@ 100°C (hour)	1
Specific Gravity	2.57
ASTM D 1505	
Shelf Life @ -30°C (months)	3
@ -5°C (month)	1

Appearance/Color	Grey
Thixotropic Index	1.3

Typical Cured Properties:

Maximum Service Temperature (°C)	200
Coefficient of Linear Thermal Expansion (ppm/°C) Alpha 2	232
Thermal Conductivity (W/m²K) ASTM F-433	2.34
Thermal Impedance (°C in²/W)	0.02
Glass Transition Temperature (T_g) TMA (°C) ASTM D3386	-121
Storage Modulus (G') @ 125°C (Pa)	15,000

Electrical Properties:

Volume Resistivity @ 25°C (ohm-cm) ASTM D 257	8 x 10 ¹³
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Cure Inhibition:

As with all addition cure silicones, avoid contact with surfaces bearing amines, sulfur or tin salts. Materials such as wood or natural rubber may contain cure inhibition ingredients and they can leave Gelease™ MG-125 uncured and subject to pump-out. If in doubt, apply a test patch of catalyzed Gelease™ MG-125 to the surface and allow it to set for the normal cure time.

Shelf Life and Storage:

Gelease™ MG-125 has a shelf life of approximately three months at -30°C or 1 month @ -5°C in closed containers. The recommended storage temperature is -30°C. The storage temperature must not deviate outside the following range -25°C to -35°C.

Handling Precautions:

The labels on containers of Lord materials contain current information on the hazards associated with each particular product. Most silicone resins and hardeners are skin and eye irritants. Some may be corrosive to the skin and eyes. Other problems, such as skin sensitization or serious health hazards, may exist. Further information on each product is contained in the Material Safety Data Sheet, which will be sent upon request.

Shipping and Unpacking Procedure:

This material is packed and shipped frozen in Johnny Blue Ice to protect it from thermal excursions during shipment. The substantially engineered system of an insulated container, packing material and the Johnny Blue Ice is designed to protect the material for up to 6 days in transit (international) and up to 48 hours in transit (domestic). It is critical that the shipping container is not opened in transit and that the shipment be expedited during transit to its final destination. **DO NOT ALLOW THE SHIPMENT TO BE LEFT ON LOADING DOCKS, IN CUSTOMS WAREHOUSES, OR ON FREIGHT TRUCKS FOR LONG TIME PERIODS.**

Maintaining temperature at or below freezing, but not lower than -30°C, upon receipt is critical to maintain the functionality and performance of the material. Failure to maintain temperature at the recommended storage temperature, as stated on the technical data sheet, will void any warranties and may adversely affect performance.

Upon receipt, the syringes must be immediately transferred from the shipping container to a suitable storage environment. We recommend the use of insulated gloves when handling the frozen syringes.

Holding frozen syringes in your bare hands may result in void formation. Freeze-thaw voids may also form if the syringes are repeatedly thawed and refrozen.

Note: Please refer to the product technical data sheet for alternative storage condition recommendations.

Storage and Thaw Procedure:

ALL SYRINGES MUST BE MAINTAINED AS RECOMMENDED (IDEALLY AT -30°C) IN AN UPRIGHT (VERTICAL) POSITION WITH THE SYRINGE TIP FACING DOWN. DO NOT LAY SYRINGES ON THEIR SIDES (HORIZONTALLY) UNDER ANY CIRCUMSTANCES.

Prior to application, the material must be allowed to thaw naturally to room temperature (ideally 20-25°C) by placing the syringes in a vertical position with dispense tip facing downward in an ambient environment. This is a critical step for obtaining optimum dispensing performance.

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Under no circumstance should artificial heat sources be used to increase thaw speed. Do not place the syringes in warm water or near any heat source including ovens, hot plates, hot air guns, etc. Thaw time varies by package style and size and is typically 45 to 120 minutes based on ambient temperature.

Please refer to the Product Technical Data Sheet and the chart below to determine the appropriate thaw times. Thaw times will be based on the actual storage temperature used in-house and should reflect conditions recommended on the Product Technical Data Sheet.

STORAGE TEMPERATURE VERSUS THAW TIME*		
PACKAGING	0 TO +6°C	0 TO -40°C
3 to 10cc Syringe	45 Minutes	75 Minutes
30 to 55cc Syringe	75 Minutes	1.5 Hours
2.5 Ounce Cartridge	1.5 Hours	2 Hours
6 Ounce Cartridge	1.5 Hours	2 hours

* Ambient Temperature 21 to 25°C during thaw sequence.

Do not use the syringes before contents reach ambient temperature. Wipe all excess moisture from the syringes prior to use. A small amount of air in the tip area is normal. Carefully remove the tip cover and manually extrude a small amount of material displacing any air that may be in the tip – cap interface. Mount the syringe onto the dispense equipment that has been thoroughly cleaned and purge material through the system until an unbroken flow of material is extruded. The system is now ready to begin dispensing.

Once thawed to room temperature, the syringes must be consumed within the allotted working life specified then discarded. Under no circumstances should the material be refrozen for reuse or consumed after the working life has expired.

IMPORTANT NOTICE TO PURCHASERS: Only those properties identified as "specifications" on Lord technical bulletins are tested by Lord's Quality Control Department prior to shipment. The results of these tests must conform to those "specifications". Other properties are "typical". Tests are not run on the "typical properties" of every batch produced. "Typical property" data is not intended for specification purposes and Lord assumes no responsibility and makes no warranty with respect to it. If any property, other than those designated as Lord "specifications", is important to the purchaser, information as to such property will be supplied only upon the basis of test procedures agreed upon between Lord and the purchaser prior to the acceptance of the purchaser order.

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