

## Super Thermal Grease III

### Description

8617 is a zinc oxide-free thermally conductive paste. It is designed to reduce thermal resistance between irregular metal surfaces. It can be shipped non-regulated in all sizes, making it convenient for high volume users. It is most commonly used to improve heat flow between heat sinks, LEDs, motors, and heat-generating electronic components such as CPUs, GPUs, and power components.

### Features and Benefits

- High thermal conductivity of 1.0 W/m·K
- Zinc oxide-free—ships non-regulated in all sizes
- Silicone-free
- Broad service temperature of -68 to 165 °C (-90 to 329 °F)
- High dielectric strength
- Excellent corrosion resistance
- Non-bleeding
- Non-electrically conductive
- Long service life

### Usage Parameters

Properties	Value
Shelf life	5 y
Theoretical coverage for 85 mL tube <sup>a)</sup>	<33 500 cm <sup>2</sup> [<36 ft <sup>2</sup> ]

a) Estimate based on 25 µm [1.0 mil] thickness and 100% transfer efficiency.

### Temperature Ranges

Properties	Value
Constant service temperature	-68 to 165 °C [-90 to 329 °F]
Storage temperature limits	-10 to 40 °C [14 to 104 °F]

## Properties

Thermal Properties	Method	Value
Thermal conductivity @25 °C [77 °F]	ASTM E 1461	1.0 W/(m·K)
Heat capacity @25 °C [77 °F]	—	1.11 J/(g·°C)
Contact thermal resistance <sup>a)</sup>	ASTM E 1225	0.71 x 10 <sup>-3</sup> (m <sup>2</sup> ·K)/W
Electrical Properties	Method	Value
Volume resistivity ( $\rho_v$ ) @500 V	ASTM D 257	9.9 x 10 <sup>9</sup> $\Omega$ ·cm
Volume conductivity ( $\sigma_v$ ) @500 V	ASTM D 257	1.0 x 10 <sup>-10</sup> S/cm
Dielectric strength <sup>b)</sup>	ASTM D 149	450 V/mil [17.6 kV/mm]
Breakdown voltage	ASTM D 149	4 500 V [4.5 kV]
Dielectric constant @1 000 cps @10 000 cps	ASTM D 150 ASTM D 150	6.07 5.85
Dissipation factor @1 000 cps @10 000 cps	ASTM D 150 ASTM D 150	0.08 0.02
Grease Properties	Method	Value
Evaporation loss, 22 h @165 °C [329 °F]	ASTM D 2595	2.3%
Oil separation, 30 h @165 °C [329 °F]	ASTM D 6184	1.0%
Dropping point	ASTM D 2265	>308 °C [>586 °F]
Water washout @38 °C [100 °F] <sup>c)</sup>	ASTM D 1264	1.5%
Worked penetration, 60 strokes, ½ scale	ASTM D 1403	343
Pressure vessel oxidation test @100 h	ASTM D 942	5.5 psi drop
Copper corrosion @100 °C [212 °F], 24 h	ASTM D 4048	1a, shiny

**a)** Tested with stainless steel plates.

**b)** Test as per SAE AS8660: ½ inch hemispherical electrodes 500 V/s rate of rise, 50% R.H. @10 mil gap.

**c)** Bearing dried at 77 °C [171 °F].

## Properties

Physical Properties	Method	Value
Color	Visual	White
Odor	—	Odorless
Density @25 °C [77 °F]	ASTM D 1475	1.96 g/mL
Viscosity	IPCTM-65- Method 2.4.24.4	120 Pa·s <sup>a)</sup>
Lubricant	—	No
Bleed	—	Yes
Corrosion resistant	—	Yes
Fillers	—	Aluminum oxide and boron nitride
Synthetic Oil Properties	Method	Value
Oil viscosity index <sup>b)</sup>	ASTM D 2270	>110
Fire point <sup>c)</sup>	ASTM D 92	321 °C [609.8 °F]
Flash point	ASTM D 92	>290 °C [>554 °F]

*Note:* Values based on synthetic oil component only.

**a)** Brookfield viscometer at 12 rpm with spindle RV S94.

**b)** High oil viscosity index of more than 100 indicates a small oil viscosity change with temperature.

**c)** Temperature at which oil will continue to burn for at least 5 s after ignition with an open flame.

## Storage

Store between -10 and 40 °C [14 and 104 °F] in dry area.

## Health, Safety, and Environmental Awareness

Please see the 8617 Safety Data Sheet (SDS) for further details on transportation, storage, handling, safety guidelines, and regulatory compliance.

## Application Instructions

### To apply the grease:

1. Wear protective gloves.
2. Clean and dry the surface being lubricated with a lint-free cloth or brush and a zero-residue cleaning solvent, such as MG 824 Isopropyl Alcohol.
3. Apply a thin, even layer of grease using a spatula or other appropriate application tool.

## Packaging and Supporting Products

Cat. No.	Packaging	Net Volume	Net Weight	Packaged Weight
8617-85ML	Tube	85 mL [2.87 fl oz]	166 g [5.87 oz]	0.2 kg [0.4 lb]
8617-1P	Jar	473 mL [1.00 pt]	926 g [2.04 lb]	1.0 kg [2.2 lb]
8617-1G	Pail	3.78 L [1.01 gal]	7.40 kg [16.3 lb]	7.65 kg [16.8 lb]

Contact M.G. Chemicals if custom packaging or sizes are required.

## Technical Support

Please contact us regarding any questions, suggestions for improvements, or problems with this product. Application notes, instructions and FAQs are located at [www.mgchemicals.com](http://www.mgchemicals.com).

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