

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 ^{a)}	<33 500 cm ² [<36 ft ²]

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 ^{a)}	ASTM E 1225	0.71 x 10 ⁻³ (m ² ·K)/W
Electrical Properties	Method	Value
Volume resistivity (ρ_v) @500 V	ASTM D 257	9.9 x 10 ⁹ Ω ·cm
Volume conductivity (σ_v) @500 V	ASTM D 257	1.0 x 10 ⁻¹⁰ S/cm
Dielectric strength ^{b)}	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] ^{c)}	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 ^{a)}
Lubricant	—	No
Bleed	—	Yes
Corrosion resistant	—	Yes
Fillers	—	Aluminum oxide and boron nitride
Synthetic Oil Properties	Method	Value
Oil viscosity index ^{b)}	ASTM D 2270	>110
Fire point ^{c)}	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.

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