Super Thermal Grease III
8617 Technical Data Sheet

Description

The 8617 *Super Thermal Grease III* is a low thermal resistance, non-corrosive grease. It uses an extremely thermal stable synthetic oil that is electrically insulating. It is used to improve the thermal interface contact conductivity between heat sinks, LEDs, motors, and heat-generating electronic components such as CPUs, GPUs, and power components. This grease improves the thermal interface between irregular and pitted surfaces.

Benefits & Features

- **Silicone and ZnO free**
- **High thermal conductivity**
- **Lowers the contact resistance between irregular surfaces**
- **Extends the life of electronic components**
- **Electrically insulating**
- **Non-bleeding**
- **Safe on plastics**

Usage Parameters

Properties	*Value*
Shelf Life	5 y
Theoretical Coverage for 85 mL tube [a)]	<33 500 cm^2 <36 ft^2

a) Idealized 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]

Principal Components

Name	***CAS Number***
Aluminum oxide	*1344-28-1*
Naphthenic acids, zinc salts	*12001-85-3*

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

a) Tested with stainless steel plates

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Electrical Properties	Method	Value
Volume Resistivity (ρ_v) @500 V	ASTM D 257	9.9×10^9 Ω·cm
Volume Conductivity (σ_v) @500 V	"	1.0×10^{-10} S/cm
Dielectric Strength [a]	ASTM D 149	450 V/mil [17.6 kV/mm]
Breakdown Voltage	"	4 500 V [4.5 kV]
Dielectric Constant @1 000 cps	ASTM D 150	6.07
@10 000 cps	"	5.85
Dissipation Factor @1 000 cps	"	0.08
@10 000 cps	"	0.02

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

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] [b]	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

Physical Properties	Method	Value
Color	Visual	White
Odor		Odorless
Density @25 °C [77 °F]	ASTM D 1475	1.96 g/mL
Viscosity		Thixotropic paste
Lubricant		No
Bleed		Yes
Corrosion Resistant		Yes
Filler		Aluminum oxide and boron nitride

b) Bearing dried at 77 °C [171 °F].

Synthetic Oil Properties	Method	Value
Oil viscosity index [c]	ASTM D 2270	>110
Fire Point [d]	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.
c) High oil viscosity index of more than a 100 indicate small oil viscosity change with temperature.
d) 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 greater details on transportation, storage, handling and other security guidelines.

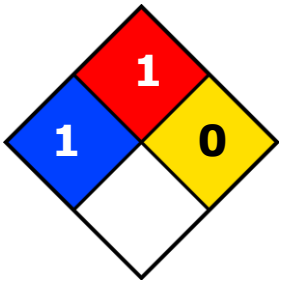
Environmental Impact: Not regulated as a dangerous good for transport.

Health and Safety: Wear safety glasses and disposable gloves to avoid exposures.

HMIS® RATING

HEALTH:	**1**
FLAMMABILITY:	**1**
PHYSICAL HAZARD:	**0**
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:
0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

Application Instructions

The conductive grease performance depends on mainly on surface preparation. Improperly prepared contact surfaces can degrade the paste's stability, conductivity, and lubrication characteristics. While the thickness and coverage are also important, the application method itself can easily be adjusted according to performance and application needs.

Prerequisites

- Wear gloves and protective clothing.
- Clean and dry the surface of the substrate to remove other oils and greases, as well as dust, water, solvents, or any other contaminants.
- *Recommendations*: Use MG 824 Isopropyl Alcohol or MG 4351 Thinner

Equipment

- Lint free cloth (for cleaning contact and for wiping excess residue)
- Spatula or stick application tools (sized appropriately for your application)
- Isopropyl alcohol or other residue-free organic solvents

To apply the grease

1. Wipe the contact with a lint-free cloth.
2. Clean the contacts with isopropyl alcohol or other non-oil based cleaner.
3. Once dry, spread grease in a thin layer onto the surface.

Packaging and Supporting Products

Cat. No.	*Packaging*	*Net Volume*		*Net Weight*		*Packaging Weights*	
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 pt	926 g	2.04 lb	1.0 kg	2.2 lb
8617-1G	Pail	3.78 L	1 gal	7.4 kg	16.3 lb	TBD	TBD
Contact MG Chemicals if custom packaging or sizes are required							

TBD=To be determined

Supporting Products

- *Thinner*: Cat. No. 4351-1L
- *Isopropyl Alcohol*: Cat. No. 824-1L

Technical Support

Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

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Warranty

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