

## Super Thermal Grease II

### Description

8616 is a paste with high thermal conductivity. It is designed to reduce thermal resistance between irregular metal surfaces. 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

- Thermal conductivity of 1.8 W/m·K
- Silicone-free
- Broad service temperature of -68 to 165 °C (-90 to 329 °F)
- High dielectric strength
- Excellent corrosion resistance—passed ASTM B117 salt fog test 1 000 hours
- Non-bleeding
- Non-electrically conductive
- Long service life

### Usage Parameters

Properties	Value
Shelf life	5 y
Theoretical coverage for 3 mL syringe <sup>a)</sup>	<1 180 cm <sup>2</sup> [<0.64 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	1.78 W/(m·K)
Contact thermal resistance <sup>a)</sup>	ASTM E 1225	0.24 x 10 <sup>-3</sup> (m <sup>2</sup> K)/W
Electrical Properties	Method	Value
Volume resistivity ( $\rho_v$ )	ASTM D 257	1.8 x 10 <sup>11</sup> $\Omega$ ·cm
Volume conductivity ( $\sigma_v$ )	ASTM D 257	5.6 x 10 <sup>-12</sup> S/cm
Dielectric strength @50 mil gap	ASTM D 149	330 V/mil [13 kV/mm]
Breakdown voltage	ASTM D 149	16 600 V [16.6 kV]
Dielectric constant @1 000 cps @10 000 cps	ASTM D 150 ASTM D 150	6.77 6.69
Dissipation factor @1 000 cps @10 000 cps	ASTM D 150 ASTM D 150	0.01 0.01
Grease Properties	Method	Value
Evaporation loss, 22 h @165 °C [329 °F]	ASTM D 2595	1.2%
Oil separation, 30 h @165 °C [329 °F]	ASTM D 6184	0.02%
Dropping point	ASTM D 2265	>300 °C [>572 °F]
Water washout @38 °C [100 °F]	ASTM D 1264	0.9%
Worked penetration unworked 60 strokes 10 000 strokes	ASTM D 217 ASTM D 217 ASTM D 217	284 287 313
Salt spray corrosion resistance <sup>b)</sup>	ASTM B 117	Pass

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

**b)** Aluminum 2024 coupons with 254  $\mu$ m [10 mil] film thickness and 1 000 h exposure to 5% salt spray.

## Properties

Physical Properties	Method	Value
Color	—	White, silvery
Odor	—	Odorless
Density @25 °C [77 °F]	ASTM D 1475	2.69 g/mL
Viscosity	IPCTM-65- Method 2.4.24.4	365 Pa·s <sup>a)</sup>
Lubricant	—	No
Bleed	—	Yes
Corrosion resistant	—	Yes
Fillers	—	Aluminum oxide, zinc 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 [610 °F]
Flash point	ASTM D 92	>290 °C [>554 °F]

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

**a)** Brookfield viscometer at 20 rpm with spindle RV S95.

**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 8616 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
8616-3ML	Syringe	3 mL [0.10 fl oz]	8.06 g [0.28 oz]	0.02 kg [0.04 lb]
8616-25ML	Jar	25 mL [0.84 fl oz]	67.2 g [2.37 oz]	0.63 kg [1.4 lb] <sup>a)</sup>
8616-85ML	Tube	85 mL [2.87 fl oz]	228 g [8.06 oz]	TBD
8616-1P	Jar	483 mL [1.02 pt]	1.30 kg [2.86 lb]	1.34 kg [2.95 lb]
8616-1G	Pail	3.78 L [1.01 gal]	10.1 kg [22.4 lb]	10.6 kg [23.3 lb]

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

TBD = To be determined

a) Case pack of 5

## 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).

**Email:** [support@mgchemicals.com](mailto:support@mgchemicals.com)

**Phone:** +(1) 800-340-0772 (Canada, Mexico & USA)

+ (1) 905-331-1396 (International)

+ (44) 1663 362888 (UK & Europe)

**Fax:** +(1) 905-331-2862 or +(1) 800-340-0773

**Mailing address: Manufacturing & Support**

1210 Corporate Drive  
Burlington, Ontario, Canada  
L7L 5R6

**Head Office**

9347-193rd Street  
Surrey, British Columbia, Canada  
V4N 4E7

## Disclaimer

This information is believed to be accurate. It is intended for professional end users who have the skills required to evaluate and use the data properly. M.G. Chemicals Ltd. does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.