

## Description

The 8616 *Super Thermal Grease II* is a low thermal resistance grease with a synthetic oil base that is electrically insulating and non-corrosive. It is used to improve the thermal interface contact conductivity between heat sinks, LEDs, motors, and heat-generating electronic components such as CPUs, GPU chipsets, and power components. It improves the thermal interface between irregular and pitted surfaces.

## Benefits & Features

- High thermal conductivity
- Silicone free and non-bleeding
- Excellent corrosion resistance—Passed ASTM B 117 1 000 hours
- Lowers the contact resistance between irregular surfaces
- Extends the life of electronic components
- Electrically insulating
- Safe on plastics

## Usage Parameters

<i>Properties</i>	<i>Value</i>
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) Idealized estimate based on 25 μm [1.0 mil] thickness and 100% transfer efficiency.

## Temperature Ranges

<i>Properties</i>	<i>Value</i>
Constant Service Temperature	-68 to 165 °C [-90 to 329 °F]
Storage Temperature Limits	-10 to 40 °C [14 to 104 °F]

## Properties

<i>Conductivity Properties</i>	<i>Method</i>	<i>Value</i>
Thermal Conductivity @25 °C [77 °F]	ASTM E 1461	1.8 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
Volume Resistivity (ρ <sub>v</sub> )		<i>test pending</i>

a) Tested with stainless steel plates

<i>Physical Properties</i>	<i>Method</i>	<i>Value</i>
Color	Visual	White, silvery
Filler		Aluminum oxide, zinc oxide, and boron nitride
Odor		Odorless
Density @25 °C [77 °F]	ASTM D 1475	2.69 g/mL
Viscosity		Thixotropic paste
Drop Point	ASTM D 2265	>300 °C [>572 °F]
Cone Penetration, unworked	ASTM D 217	284
60 Strokes	"	287
10 000 Strokes	"	313
Oil Separation <sup>a)</sup>	Boeing test	None
Salt Spray Corrosion Resistance <sup>b)</sup>	ASTM B 117	Pass
%Evaporation loss @25 °C, 44 h		0% (wt)
@204 °C, 44 h		5% (wt)
VOC (Volatile Organic Compound) <sup>c)</sup>	Estimated	5% to 18%
Lubricant		No
Corrosion Resistant		Yes
Bleed Resistant		Yes

a) After ten cycles from -40 to 121 °C.

b) Aluminum 2024 coupons with 254 µm [10 mil] film thickness and 1 000 hours exposure to 5% salt spray

c) According to WHIMS regulation

<i>Synthetic Oil Properties</i>	<i>Method</i>	<i>Value</i>
Oil Viscosity Index <sup>a)</sup>	ASTM D 2270	>110
Fire Point <sup>b)</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) High oil viscosity index of more than a 100 indicate small oil viscosity change with temperature.

b) 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 greater details on transportation, storage, handling and other security guidelines.

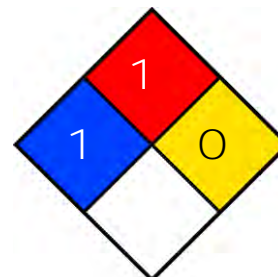
*Environmental Impact:* The VOC (volatile organic compound) content is 18% by WHMIS and European standards. Not regulated as a dangerous good for transport.

*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

<i>Cat. No.</i>	<i>Packaging</i>	<i>Net Volume</i>		<i>Net Weight</i>		<i>Packaging Weights</i>	
8616-3ML	Syringe	3 mL	0.1 fl oz	8.0 g	0.28 oz	0.02 kg	0.04 lb
8616-25ML	Jar	25 mL	0.8 fl oz	67.2 g	2.37 oz	0.63 kg <sup>a)</sup>	1.4 lb <sup>a)</sup>
8616-85ML	Tube	85 mL	2.8 fl oz	228 g	8.06 oz	TBD	TBD
8616-1P	Jar	473 mL	1 pint	1.27 kg	2.8 lb	1.34 kg	2.95 lb
8616-1G	Pail	3.78 L	1.0 gal	10.1 kg	22.4 lb	10.6 kg	23.3 lb

Contact MG Chemicals if custom packaging or sizes are required

TBD=To be determined

a) Case pack of five

### 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](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)

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

## Warranty

*M.G. Chemicals Ltd.* warranties this product for 12 months from the date of purchase by the end user. *M.G. Chemicals Ltd.* makes no claims as to shelf life of this product for the warranty. The liability of *M.G. Chemicals Ltd.* whether based on its warranty, contracts, or otherwise shall in no case include incidental or consequential damage.

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