Super Thermal Grease II
8616 Technical Data Sheet

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

Properties	*Value*
Shelf Life	5 y
Theoretical Coverage for 3 mL syringe [a)]	<1 180 cm^2 <0.64 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]

Properties

Conductivity Properties	*Method*	*Value*
Thermal Conductivity @25 °C [77 °F]	ASTM E 1461	1.8 W/(m·K)
Contact Thermal Resistance [a)]	ASTM E 1225	0.24 x 10^{-3} (m^2K)/W
Volume Resistivity (ρ_v)		*test pending*

a) Tested with stainless steel plates

Rev. Date: 27 April 2016 / Ver. 1.03

Physical Properties	Method	Value
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 [a)]	Boeing test	None
Salt Spray Corrosion Resistance [b)]	ASTM B 117	Pass
%Evaporation loss @25 °C, 44 h		0% (wt)
@204 °C, 44 h		5% (wt)
VOC (Volatile Organic Compound) [c)]	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

Synthetic Oil Properties	Method	Value
Oil Viscosity Index [a)]	ASTM D 2270	>110
Fire Point [b)]	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.

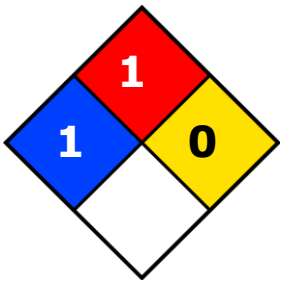
Environmental Impact: The VOC (volatile organic compound) content is 18% by WHMIS and European standards. Not regulated as a dangerous good for transport.

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

Cat. No.	*Packaging*	*Net Volume*		*Net Weight*		*Packaging Weights*	
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 [a)]	1.4 lb [a)]
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.

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Warranty

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