SUPER THERMAL GREASE II **8616**

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: Super Thermal Grease II **SDS Code:** 8616

Related Part # 8616-4G, 8616-3ML, 8616-25ML, 8616-85ML, 8616-1P, 8616-1G

Recommended Use and Restriction on Use

Use: Thermal interface grease for improving heat flow between the CPU and heat sink

Uses Advised Against: Not applicable

Details of Manufacturer or Importer

Manufacturer
MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA

☎ +1-800-340-0772
FAX +1-800-340-0773
E-MAIL support@mgchemicals.com
WEB www.mgchemicals.com

MG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA

☎ +1-905-331-1396
FAX +1-905-331-2682
E-MAIL info@mgchemicals.com

E-MAIL (Competent Person): sds@mgchemicals.com

Emergency Phone Number

For hazardous material incidents ONLY—leaks, spills, fires, exposures or accidents
USA or CANADA: Call CHEMTREC ☎: ***+1-800-424-9300***

For emergencies involving dangerous goods; Collect 24/7
CANADA: Call CANUTEC ☎: ***+1-613-996-6666*** or ****666*** on cellular phones

Section 2: Hazard(s) Identification

Classification of Hazardous Chemical

GHS Categories

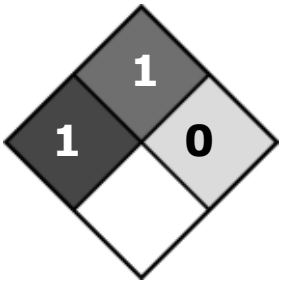
Criteria		Category	Signal Word	Pictograms
Environmental Hazard	Chronic Aqua. Tox.	1	Warning	

Other Classifications

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)

Label Elements

Signal Word	**WARNING**
Pictograms	**Hazard Statements**
	H410: Very toxic to aquatic life with long lasting effects
Prevention	**Precautionary Statements**
P273	Avoid release to the environment
Response	**Precautionary Statements**
P391	Collect Spillage

Continued on the next page

Disposal	*Precautionary Statements*
P501	Dispose of contents/container in accordance to local/regional/national/international regulations.

Other Hazards

When the product is exposed to very high heat such as welding or when mechanically aerosolized, this may cause harmful zinc oxide and aluminum oxide fumes.

Inhalation of fumes may cause metal fever and irritate the respiratory tract. The flu-like symptoms of metal fume fever may be delayed, occurring 4–12 hours after exposure. Repeated or prolonged exposure to aluminum oxide fumes may also lead to staining, pulmonary fibrosis (lung scarring), and pneumoconiosis (reaction to the deposition of dust in the lungs).

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	Wt%
1344-28-1	aluminum oxide	35–45%
1314-13-2	zinc oxide	35–40%

Section 4: First-Aid Measures

Exposure Condition	*GHS Code/Symptoms/Precautionary Statements*
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	*mild irritation, redness, pain*
Response	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention
IF ON SKIN	P302 + P352, P332 + P313
Immediate Symptoms	*mild irritation*
Response	Wash with plenty of water. If irritation occurs: Get medical advice/attention

Continued on the next page

IF INHALED	P304, P340, P312 (*Not a likely route of exposure under normal use*)
Immediate Symptoms	*none known*
Response	Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing. If feeling unwell: Call a POISON CENTRE/doctor
IF SWALLOWED	P301, P330, P331, P312 (*Not a likely route of exposure under normal use*)
Symptoms	*none known*
Response	Rinse mouth. Do NOT induce vomiting. If feeling unwell: Call a POISON CENTRE/doctor

Section 5: Fire-Fighting Measures

Auto-ignition Temperature	Not established	**Flash Point** [a]	>550 °C [>1022 °F]	**LFL [LEL]** [b] **UFL [UEL]**	Not established

In case of fire	P370 + P378
Extinguishing Media	Use carbon dioxide, dry chemical, chemical foam, or water spray to extinguish. Use water spray to cool containers.
Specific Hazards	Toxic metal fumes may be released in fire. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO_2), nitrogen oxides (NOx), aluminum oxides, boron oxides, toxic fumes, and smoke.
Fire-Fighter	Wear self-contained breathing apparatus for fire fighting

a) Based on synthetic oil component Cleveland open cup value
b) LFL = Lower Flammability [or Explosion] Limit (in volume %);
UFL = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

Personal Protection	Use personal protection recommended in Section 8.
Precautions for Response	Avoid breathing the vapors/mist/fumes.
Environmental Precautions	Avoid releasing to the environment. Collect spillage.
Containment Methods	None required
Cleaning Methods	Collect paste in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container Wipe up further residue with paper towel and place dirty towels in container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Avoid breathing fumes.
	Do not eat, drink, or smoke when using this product.
Handling	Wear protective gloves/eye protection.
	Recommendation: Wear neoprene, butyl rubber, nitrile or other impervious gloves with breakthrough time greater than intended use period.
	Wash hands thoroughly after handling.
Storage	No special storage instructions needed.
	Recommendation: Keep in a dry and clean area, away from incompatible substances.

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation

Continued on the next page

Substances with Occupational Exposure Limit Values

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
aluminum oxide (dust/mist)	ACGIH	1 mg/m^3	Not established
	U.S.A. OSHA PEL	15 mg/m^3 a)	Not established
	Canada AB	10 mg/m^3	Not established
	Canada BC	3 mg/m^3	10 mg/m^3
	Canada ON	Not established	Not established
	Canada QC	10 mg/m^3	Not established
zinc oxide (dust/mist)	ACGIH	2 mg/m^3	Not established
	U.S.A. OSHA PEL	2 mg/m^3	10 mg/m^3
	Canada AB	2 mg/m^3	10 mg/m^3
	Canada BC	2 mg/m^3	10 mg/m^3
	Canada ON	2 mg/m^3	10 mg/m^3
fumes	Canada QC	2 mg/m^3	10 mg/m^3
dust	Canada QC	10 mg/m^3	Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH[1], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database[2] of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

a) Total dust limit allowed
b) Respirable airborne particles

Engineering Controls

Ventilation Keep airborne concentrations below exposure limits.

Personal Protective Equipment

Eye protection Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection (side shields).

Skin Protection Wear appropriate protective clothing to prevent skin contact.

RECOMMENDATION: Use of protective gloves in butyl rubber, latex, neoprene, or other chemically resistant gloves.

Continued on the next page

Respiratory Protection In the unlikely event of exposure to mist, wear oil resistant or oil proof particulate respirators or filter masks.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator or mask.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

Section 9: Physical and Chemical Properties

Physical State	Solid	**Lower Flammability Limit**	Not applicable
Appearance	White, grease	**Upper Flammability Limit**	Not applicable
Odor	Low odor	**Vapor Pressure @25 °C**	Not available
Odor Threshold	Not available	**Vapor Density**	Not available
pH	Not available	**Specific Gravity @25 °C**	2.74
Freezing/Melting Point	Not available	**Solubility in Water**	<0.1%
Boiling Point	Not available	**Partition Coefficient**	Not available
Flash Point [a)]	>550 °C [>1022 °F]	**Auto-ignition Temperature**	Not available
Evaporation Rate	Not available	**Decomposition Temperature**	Not available
Flammability (solid, gas)	Not available	**Viscosity @25 °C**	1 000 000 mm^2/s

a) Based on synthetic oil component Cleveland open cup value

Section 10: Stability and Reactivity

Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Very high heat (such as soldering or welding) and incompatible substances.
Incompatibilities	Halogenated compounds, strong oxidizing agents, strong acids, strong bases
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

Section 11: Toxicological Information

Likely Routes of Exposure

Eyes, skin, and inhalation

Symptoms Summary

Eyes	May cause mild eye irritation, redness or pain. The aluminum oxide and zinc oxide are mechanically abrasive.
Skin	May causes mild skin irritation.
Inhalation	Fumes or gases from product when heated to extreme temperatures can cause metal fume fever and toxic gas emissions.
Ingestion	No acute toxicity effect known. May cause irritation.
Chronic	Prolonged or repeated inhalation exposure to aluminum oxide particles may lead to lung scarring and reaction to dust deposition in the lungs.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
aluminum oxide	>5 000 mg/kg Rat[a)]	Not established	Not established	Not established
zinc oxide	7 950 mg/kg Rat	Not established	2 500 mg/m^3 mouse	Not established

Note: Representative toxicity data from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS)[2] data from supplier (M)SDS were also consulted.

Continued on the next page

Other Toxicological Effects

Skin corrosion/irritation	Classification criteria are not met.
Serious eye damage/irritation	Classification criteria are not met.
Sensitization (allergic reactions)	Based on available data, classification criteria are not met.
Carcinogenicity (risk of cancer)	Not classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP
Mutagenicity (risk of heritable genetic effects)	Classification criteria are not met.
Reproductive Toxicity (risk to sex functions)	Classification criteria are not met.
Teratogenicity (risk of fetus malformation)	Classification criteria are not met.
STOT-single exposure	Classification criteria are not met.
STOT-repeated exposure	Classification criteria are not met.
Aspiration hazard	Classification criteria are not met: the mixture does not contains Class 1 aspiration toxicant and its viscosity is >20.5 mm^2/s at 40 °C

Section 12: Ecological Information

The IMDG Code criteria and the raw-material (M)SDS along with supporting data for the classification of registered substances from the European Chemical Agency database (http://echa.europa.eu) were used.

Contains zinc oxide which is an acute and chronic category 1 solid (non-biodegradable, minimal LC50 of 0.042 mg/L) that is harmful to the environment.

The synthetic is reported by the supplier to be a Category 4 chronic aquatic toxicant.

Acute Ecotoxicity

Category 1

GHS Code: Hazard Statement

H400: Very toxic to aquatic life

Continued on the next page

Chronic Ecotoxicity

Category 1

GHS Code: Hazard Statement

H410: Very toxic to aquatic life with long lasting effects

Avoid release to the environment

Collect spillage

Biodegradability

Not readily biodegradable

Other Effects

Regulated Volatile Organic Content (VOC) = 18% (485 g/L)

Section 13: Disposal Information

Dispose of contents in accordance with all local, regional, national, and international regulations.

Section 14: Transport Information

Ground

Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations); **USA CFR 49 Regulations** (Parts 100 to 185).

Sizes 5 kg and under	Sizes greater than 5 kg
Limited Quantity 	**UN number**: UN3077 **Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide) **Class:** 9 **Packing Group**: III **Marine Pollutant:** Yes 

Continued on the next page

Air

Refer to ICAO-IATA Dangerous Goods Regulations.	
Sizes 30 g and under **Excepted Quantity** Document as class **E1** Refer to Package Mark 2.6.7.1 in **IATA** for further instruction  	Sizes greater than 30 g up to 30 kg **Limited Quantity** **UN number**: UN3077 **Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide) **Class:** 9 **Packing Group**: III **Marine Pollutant:** Yes 

Sea

Refer to IMDG regulations.	
Sizes 5 kg and under **Limited Quantity** 	Sizes greater than 5 kg **UN number**: UN3077 **Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide) **Class:** 9 **Packing Group**: III **Marine Pollutant:** Yes 

Note: **Shipper must be appropriately <u>trained and certified</u> before involvement with the transport of dangerous goods.**

Section 15: Regulatory Information

Canada

WHMIS Classification

Not classified as hazardous under WHMIS

Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)

All hazardous ingredients are listed on the DSL/NDSL.

Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

Continued on the next page

Health Canada

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling Regulations.

USA

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product does not contain substances that are listed as hazardous air pollutants.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45

This product contains aluminum oxide (CAS# 1344-28-1), which is subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, USA).

This product does not contain any of the listed substances.

Europe

RoHS

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

WEEE

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

SDS Prepared by	Michel Hachey
Date of Revision	14 November 2014
Supersedes	10 September 2014

Reason for Changes: Added gallon size product code

Continued on the next page

Reference

1) ACGIH *2013 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices*, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2011).

2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
NOELR	No observable effect loading ratio
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content
WEEL	Workplace Environmental Exposure Levels

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

Email: support@mgchemicals.com

Mailing Addresses

Manufacturing & Support
1210 Corporate Drive
Burlington, Ontario, Canada
L7L 5R6

Head Office
9347–193rd Street
Surrey, British Columbia, Canada
V4N 4E7

Disclaimer This material safety data sheet is provided as an information resource only. *M.G. Chemicals, Ltd.* believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to query and verify any information seeming suspect where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, regional, national, and international regulations.