Distributed By: Ladd Research
83 Holly Court
Williston, VT 05495
Tel: (802) 658-4961
Email: sales@laddresearch.com

8463 **SILVER CONDUCTIVE GREASE**

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 8463

Other Means of Identification: Silver Conductive Grease

Related Part # 8463-7G

Recommended Use and Restriction on Use

Use: Conductive lubricant for switches

Uses Advised Against: Not available

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 at ***+1-800-424-9300***

For emergencies involving the transport of dangerous goods; 24/7 service
CANADA—Call CANUTEC collect at ***+1-613-996-6666*** or ****666*** on cellular phones

Section 2: Hazards Identification

Classification of Hazardous Chemical

GHS Categories

Criteria		Category	Signal Word	Pictograms
Hazardous to the Aquatic Environment	Chronic	1	Warning	Environment

Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

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

Hazards Not Otherwise Specified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
Argyria	Long term exposure to silver powder or compounds can lead to an irreversible blue-grey discoloration of the skin.	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
7440-22-4	silver	61-67%
63148-62-9	dimethylpolysiloxane [a)]	30-34%
1333-86-4	carbon black	3-5%

a) Non-hazardous component

Section 4: First-Aid Measures

Exposure Condition	*GHS Code/Symptoms/Precautionary Statements*
IF INHALED	P304 + P340
Immediate Symptoms	*low toxicity—no symptoms known or expected*
Response	Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.
IF IN EYES	P305 + P351+ P338
Immediate Symptoms	*low toxicity— mild irritation, redness*
Response	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN	P302 + P352
Immediate Symptoms	*low toxicity—no symptoms known or expected*
Response	Wash with plenty of water andsoap.
IF SWALLOWED	P301 + P330 + P331, P314
Immediate Symptoms	*low toxicity—no symptoms known or expected*
Response	Rinse mouth. Do NOT induce vomiting. Get medical advice or attention if feeling unwell.

Section continued on the next page

Section 5: Fire Fighting Measures

Extinguishing Media	In case of fire: Use extinguish media suitable for surrounding.
Specific Hazards	At temperatures above 150 °C [302 °F], formaldehyde can be generated in presence of oxygen. Formaldehyde is classified as a human carcinogen, a skin and respiratory sensitizer; and an irritant to the eyes and throat. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO,CO_2), boron oxides, boron trifluorides, sulfur oxides (SO_x), hydrogen fluoride (HF), stannous fluoroborate
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

Section 6: Accidental Release Measures

Personal Protection	Use personal protection recommended in Section 8.
Precautions for Response	This product makes surfaces slippery and must be cleaned thoroughly.
Environmental Precautions	Avoid releasing to the environment. Do not flush to sewer.
Containment Methods	Not applicable—not readily flowable
Cleaning Methods	Collect waste in a waste container. Wipe off residues with paper towels and place the used towels in the waste container. Use soap and water to remove the last traces of residue.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Avoid release to the environment. Do not get in eyes, on skin, or on clothing.
Handling	Wear protective gloves, eye protection. Collect spillage.
Storage	**RECOMMENDATION:** Keep in a dry and clean area, away from incompatible substances.

Section 8: Exposure Controls/Personal Protection

Substances with Occupational Exposure Limit Values

Chemical Name	Country or Vendor	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
silver *(metal dust, mist)* *(metal)* *(Ag and its compounds)* *(metal, dust, fumes)*	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	0.1 mg/m^3 0.01 mg/m^3 0.1 mg/m^3 0.01 mg/m^3 0.1 mg/m^3 0.1 mg/m^3	Not established Not established Not established 0.03 mg/m^3 Not established Not established
carbon black [a)]	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	3.5 mg/m^3 3.5 mg/m^3 3.5 mg/m^3 3 mg/m^3 3.5 mg/m^3 3.5 mg/m^3	Not established Not established Not established Not established Not established 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 the RTECS[2] database and 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) Respirable airborne particles

Engineering Controls

Ventilation

Keep airborne concentrations below occupational exposure limits (OEL).

Because the carbon black is bound to the grease matrix, it does not present an airborne hazard under normal use. Ensure adequate ventilation if the product is mechanically misted or aerosolized.

Personal Protective Equipment

Eye protection

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Ensure that glasses have side shields for lateral protection.

Section continued on the next page

Skin Protection	For likely contacts, use of protective butyl rubber or other chemically resistant gloves. For incidental contacts, use nitrile or other chemically resistant gloves.
Respiratory Protection	For over-exposures up to 10 x OEL of mist, vapors, spray, and wear respirator such as a half-mask respirator with organic vapor cartridges. **RECOMMENDATION:** Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

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 available
Appearance	Silvery dark gray, paste	**Upper Flammability Limit**	Not available
Odor	None	**Vapor Pressure @20 °C**	0.13 kPa [1 mmHg]
Odor Threshold	Not available	**Vapor Density**	>1 (Air = 1)
pH	Not available	**Relative Density @25 °C**	2.29
Freezing/Melting Point	Not available	**Solubility in Water**	Insoluble
Initial Boiling Point	>200 °C [>392 °F]	**Partition Coefficient n-octanol/water**	Not available
Flash Point	300 °C [572 °F]	**Auto-ignition Temperature**	Not available
Evaporation Rate	<1 (ButAc = 1)	**Decomposition Temperature**	Not available
Flammability	Non flammable	**Viscosity @40 °C**	>20.5 mm^2/s

Section 10: Stability and Reactivity

Reactivity	Reacts with acids to form flammable hydrogen gas. Reacts violently with hydrogen peroxides to form oxygen gas. Reaction with ammonia may form explosive compounds when dry. Reacts with acetylene to form shock-sensitive compounds.
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Avoid flames, excessive temperatures, and incompatible substances.
Incompatibilities	Strong oxidizing agents, strong acids, strong bases, ammonia, acetylene, hydrogen peroxide
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

Section 11: Toxicological Information

Summary of Effects and Symptoms by Routes of Exposure

Eyes	Low toxicity—May cause mild eye irritation and redness.
Skin	Low toxicity—no symptoms known or expected
Inhalation	Low toxicity—no symptoms known or expected
Ingestion	Low toxicity—no symptoms known or expected
Chronic	Prolonged or repeated exposure to silver or silver compounds by ingestion or inhalation can cause an irreversible blue-grey skin discoloration.

Section continued on the next page

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
silver	>5 g/kg Guinea Pig	≥2 000 mg/kg Rabbit	5.16 mg/L Rat 4 h (dust)
dimethylpolysiloxane	>5 000 mg/kg Rat	>10 000 mg/kg Rabbit	>535 mg/L Rat
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	Not available

Note: Toxicity data from the RTECS[2] and ECHA databases were consulted. The data from supplier SDSs were also consulted.

Other Toxicological Effects

Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Serious eye damage/irritation
May cause mild eye irritation. Contains mechanically abrasive particles.

Sensitization (allergic reactions)
Based on available data, the classification criteria are not met.

Carcinogenicity (risk of cancer)
The carbon black [1333-86-4] is possibly carcinogenic by airborne routes of exposures. Because the carbon black is bound in the highly viscous grease matrix, it is not expected to be available as an airborne hazard (dust, mist, or spray) under normal and emergency uses.

Carbon Black [1333-86-4]

IARC Group 2B: Possibly carcinogenic to humans

ACGIH A4: Not classified as a human carcinogen

CA Prop 65: Listed as a carcinogen

NTP: Not listed

Mutagenicity (risk of heritable genetic effects)
Based on available data, the classification criteria are not met.

Reproductive Toxicity (risk to sex functions)
Based on available data, the classification criteria are not met.

Section continued on the next page

Teratogenicity (risk of fetus malformation)	Based on available data, the classification criteria are not met.
STOT-single exposure	Based on available data, the classification criteria are not met.
STOT-repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, the classification criteria are not met. There is no category 1 components, and the kinematic viscosity is >20.5 mm^2/s at 40 °C.

Section 12: Ecological Information

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (http://echa.europa.eu), and other reliable sources.

Contains silver particles less than a 1 mm in size but >100 nm (larger than nanoparticles), which are very toxic to the environment in their ionic form. While both are insoluble in water, classification is being harmonized to EU classification.

Dimethylpolysiloxane and carbon black are not classifiable as ecotoxic hazards under GHS criteria.

Acute Ecotoxicity

Category 1

Very toxic to aquatic life

Chronic Ecotoxicity

Category 1

Very Toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

Biodegradability

Not readily biodegradable

Other Effects

VOC (Regulated Volatile Organic Content) = 31% [712 g/L]

Section 13: Disposal Considerations

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 DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Sizes under 450 kg **NOT REGULATED** in TDG per Special Provisions 99	*FOR REFERENCE ONLY* **UN number**: UN3077 **Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (silver particles <1 mm) **Class:** 9 **Packing Group**: III **Marine Pollutant:** Yes
Sizes 5 kg and under Cat no: 8463-7G **NOT REGULATED** in 49 CFR per exception 171.4 (c)(2)	

Special Provision 99 (2): These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of less than 450 kg of UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., or less than 450 L of UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., on a road vehicle or a railway vehicle. The dangerous goods must be contained in one or more small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods that could endanger public safety.

Section continued on the next page

Air

Refer to ICAO-IATA regulations.

Sizes 5 kg and under: Cat. No. 8463-7G

NOT REGULATED On the air waybill, write "Not Restricted, as per Special Provisions A197"	

Special Provision A197: These substances when transported in single or combination packagings containing net quantity per single or inner packaging of less than 5 L or less for liquids or having a net mass of 5 kg or less for solids, are not subject to any other provisions of these Regulations provided the packagings meet the general provisions 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

Sea

Refer to IMDG regulations.

Sizes 5 kg and under: Cat. No. 8463-7G

NOT REGULATED per 2.10.2.7	

2.10.2.7: Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to any other provision of this Code relevant to marine pollutants provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. In the case of marine pollutants also meeting the criteria for inclusion in another hazard class, all provisions of this Code relevant to any additional hazards continue to apply.

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

Section 15: Regulatory Information

Canada

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

All hazardous ingredients are listed on the DSL/NDSL.

Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

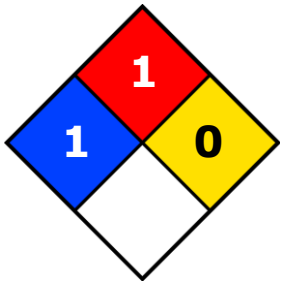
USA

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)

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 does not contain ingredients that are 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.

Section continued on the next page

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

This product contains carbon black, but it is bound and exposures during normal conditions of uses are below the Safe Harbor Threshold.

Europe

RoHS (Restriction of Hazardous Substances Directive)

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

WEEE (Waste Electrical and Electronic Equipment Directive)

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	Regulatory Department
Date of Review	17 September 2019
Supersedes	04 January 2019
Reason for Changes:	Minor formatting changes.

Reference

1) ACGIH *2017 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 (2017).

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

Section continued on the next page

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

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.