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Premium Carbon Conductive Grease
8481 Technical Data Sheet

Description

The 8481 *Premium Carbon Conductive Grease* is an electrically conductive grease with a synthetic oil base. This product is similar to the MG 846 silicone conductive grease, but unlike its silicone counterpart the 8481 synthetic-oil grease is essentially non-bleeding. Further, it includes corrosion inhibitors that provide superior corrosion resistance.

Applications & Usages

The 8481 grease lubricates and improves electrical connections between sliding surfaces and parts, ensuring good grounding connection. It is also used to improve electrical continuity between irregular and pitted surfaces, as well as providing an economical way to protect switches against corrosion.

Features and Benefits

- **Improves electrical connections between irregular surfaces**
- **Excellent corrosion resistance—**Passed ASTM B 117 >550 hours
- **Volume resistivity of 160 Ω·cm**
- **Extends the life of contacts**
- **Silicone free**
- **Safe on plastics**

Usage Parameters

Properties	*Value*
Shelf Life [a)]	5 y

a) Reported shelf life assumes room temperature storage and unopened container.

Temperature Ranges

Properties	*Value*
Constant Service Temperature	-68 to 165 °C [-90 to 329 °F]
Storage Temperature Limits [b)]	-10 to 40 °C [14 to 104 °F]

b) Room temperature is acceptable. Cold storage avoids material separation and settling. If storing at 25 °C, mix thoroughly to disperse filler before use.

Principal Components

Name	***CAS Number***
High Temperature, Synthetic Oil (Non-silicone based)	*proprietary*
Carbon Black	*1333-86-4*

Date: 15 February 2017 / Ver. 1.03

Properties

Electrical Properties	*Method*	*Value*
Volume Resistivity (ρ_v)	Mil-Std-883J Method 5011.6	160 Ω·cm
Volume Conductivity (σ_v)	"	0.006 S/cm

Thermal Properties	*Method*	*Value*
Thermal Conductivity @25 °C [77 °F]	ASTM E 1461	0.29 W/(m·K)

Grease Properties	*Method*	*Value*
Evaporation Loss, 22 h @165 °C [329 °F]	ASTM D 2595	2.0%
Oil Separation, 30 h @165 °C [329 °F]	ASTM D 6184	5.0%
Oil Separation	Boeing Test [a]	Slight oil separation
Dropping Point	ASTM D 2265	>300°C [>572 °F]
Water Washout @38 °C [100 °F] [b]	ASTM D 1264	0.9%
Worked Penetration, unworked	ASTM D 217	315
60 strokes	"	315
10 000 strokes	"	319
Emcor Rust Test, distilled water	IP 220	#0, no corrosion
Salt Spray Corrosion Resistance [c]	ASTM B 117	Passed >550 hours

Physical Properties	*Method*	*Value*
Color		Black
Odor		Odorless
Density @25 °C [77 °F]	ASTM D 1475	1.01 g/mL
Viscosity @25 °C [77 °F]		Thixotropic paste
Lubricant		Yes
Bleed Resistant		Yes
Corrosion Resistant		Yes
VOC (Volatile Organic Compound)	Calculated	4%

a) Thermal cycling of ten cycles from -40 to 121 °C.
b) Bearing dried at 77 °C [171 °F].
c) Aluminum 2024 coupons with 254 µm [10 mil] film thickness and >550 hours exposure to 5% salt spray

Synthetic Oil Properties	*Method*	*Value*
Oil Viscosity Index [c]	ASTM D 2270	>110 °C [>230 °F]
Fire Point [d]	ASTM D 92	321 °C [610 °F]
Flash Point [e]	ASTM D 92	>290 °C [>554 °F]

Note: Values based on synthetic oil component only
c) High oil viscosity index of more than a 100 indicate small oil viscosity change with temperature.
d) Temperature at which oil will continue to burn for at least 5 seconds after ignition with an open flame.
e) Cleveland open cup method.

Storage

Store between -40 and 40 °C [40 and 104 °F] in dry area.

Health, Safety, and Environmental Awareness

Please see the 8481 **Safety Data Sheet** (SDS) for greater details on transportation, storage, handling and other security guidelines.

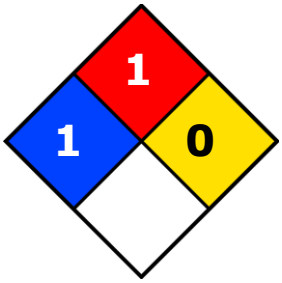
Environmental Impact: The volatile organic content is 4% by WHMIS and European standards. Not regulated as a dangerous good for transport.

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 (see 8481 SDS). This product is messy.
- Clean and dry the surface of the substrate to remove other oils and greases, as well as dust, water, solvents, or any other contaminants.
  Recommendation: Use MG 824 Isopropyl Alcohol

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

NOTE: Avoid oil-based cleaners (like WD-40) that are designed to leave a film on the metal surface. Contaminant oil or grease films may act like barriers reducing the electrical contact between the conductive paste and the metallic substrate.

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, apply the paste with the application tool to the contact, ensuring adequate coverage and desired thickness.

ATTENTION!

DO NOT apply or smooth grease with bare finger. Carbon black grease is hard to clean and may transfer to other surfaces by touch. Further, you may introduce contaminants that degrade the overall performance of the grease.

Packaging and Supporting Products

Cat. No.	*Packaging*	*Net Volume*		*Net Weight*	
8481-1 (8481-85ML)	Tube	85 mL	2.87 fl oz	85.4 g	3.07 oz
8481-2 (8481-1P)	Jar	453 mL	15.3 fl oz	465 g	1.03 lb
8481-3 (8481-1G)	Pail	3.78 L	1.0 gal	3.8 kg	8.55 lb
Contact MG Chemicals if custom packaging or sizes are required					

Supporting Products

- *Isopropyl Alcohol*: Cat. No.824

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

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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