

CHEMTRONICS[®]

Technical Data Sheet

TDS # CW7100

CircuitWorks[®] Silver Conductive Grease

PRODUCT DESCRIPTION

CircuitWorks[®] Silver Conductive Grease provides maximum electrical and thermal conductivity, proven lubrication properties, and protection from moisture, oxidation, and other environmental hazards. This system utilizes an advanced silicone lubricant that is compatible with metal, rubber, and plastic.

- High electrical conductivity
- Excellent thermal conductivity
- Provides protection against wear
- Remains stable in a wide temperature range; -70 to 485°F (-57 to 252°C)
- Protects against moisture and corrosion
- Very low viscosity vs. temperature change

TYPICAL APPLICATIONS

CircuitWorks[®] Silver Conductive Grease may be used for high and low power applications including:

- Lubrication of Substation Switches or Circuit Breakers
- Heat Dissipation from Transformers
- Low or Medium Speed Sliding Contacts
- Static Grounding on Seals or O-Rings
- Extending the Life of Rotating Switches

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Composition

Material	100% Silver Filled Silicone Grease
Color	Silver/Gray
Consistency	Smooth Paste

Properties

Volume resistivity	<0.01 ohm-cm
Thermal Conductivity (BTU-in/hr-ft ² -°F)	38.8
(CAL-cm/sec-cm ² -°C)	1.3 x 10 ⁻²
(W/m ² K)	5.6
Operating Temperature Range	-70 to 485°F (-57 to 252°C)
Unworked Penetration (ASTM D-1403) 77°F	210
Worked Penetration (ASTM D-1403, 60 Strokes)	250
Dropping Point (ASTM D-2266)	491°F (255°C)
Steel on Steel Wear (ASTM D-2266)	1.5mm
Corrosion on Copper	None
Moisture Resistance	Excellent
Chemical Resistance	Excellent
Electrical Conductivity	Excellent
Thermal Conductivity	Excellent
Lubrication Properties	Excellent
Protection from Oxidation	Excellent
Power Rating	High/Low
Shelflife	2 years

RoHS/WEEE

Status



COMPATIBILITY

CircuitWorks[®] Silver Conductive Grease is generally compatible with metal, rubber, and plastic. As with any compound, compatibility with substrate should be determined on a non-critical area prior to use.

USAGE INSTRUCTIONS

Surface Preparation: For best results, clean parts to be lubricated with Chemtronics[®] Electro-Wash[®] PX cleaner in order to remove any surface contamination which may prevent adequate material contact.

Thinning: Do not attempt to thin.

Application:

Syringe: Remove cap and gently press on plunger. Apply CircuitWorks[®] Silver Conductive Grease directly to surface or use application tip.

Clean-Up: Electro-Wash[®] PX cleaner can be used to remove trace residues. Excess material may also be removed using a wipe such as the Chemtronics[®] ControlWipes[™]. Silver particles may stain porous materials.

WARNING:

To avoid shock or possible fire, stop power to any system before applying conductive grease. Insure positive and negative contacts remain isolated. Improper use can result in shorting, arcing, or shock.

AVAILABILITY

CW7100 6.5g / 0.23 oz. Syringe

NOTE:

This information is believed to be accurate. It is intended for professional end users having the skills to evaluate and use the data properly. ITW CHEMTRONICS[®] does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Information: 800-TECH-401

Product Identification**CIRCUITWORKS® CONDUCTIVE GREASE - SILVER**

Product Code: CW7100, CW7100BLK2500

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Product Ingredient Information	CAS No.	Wt. % Range
Silver (Metallic)	7440-22-4	55.0-85.0
Silicone Oil	9005-12-3	15.0-45.0

SECTION 3: HAZARD IDENTIFICATIONEmergency Overview: Silver/gray grease with no odor. This product is nonflammable. Liquid will irritate eyes and skin.Potential Health Effects:Eyes: Liquid and vapors of this product may cause temporary discomfort with mild redness.Skin: Not expected to be a skin irritant. Repeated and prolonged skin contact is not known to have any adverse effects.Ingestion: Harmful if swallowed. Expected to be slightly toxic by ingestion. Silver ingestion may result in generalized argyria.Inhalation: No specific information available. Not known to be a respiratory irritant.Pre-Existing Medical Conditions Aggravated by Exposure: Eye**SECTION 4: FIRST AID MEASURES**Eyes: Immediately flush with large amounts of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined by a Physician.Skin: Remove contaminated clothing and wash skin with soap and water. Get medical attention if irritation develops/persists. Wash clothes separately before reuse.Ingestion: If appreciable quantities are swallowed, seek medical attention.Inhalation: Not likely route of exposure. If inhaled and irritation occurs, remove to fresh air. If irritation persists, call a Physician.**SECTION 5: FIRE FIGHTING MEASURES**Flash Point: > 520°F (>271C) (Setaflash) LEL/UEL: NA (% by volume in air)Extinguishing Media: Use carbon dioxide or dry chemicals for small fires, aqueous foam or water for large fires involving this material.Fire Fighting Instructions: Remove all ignition sources. Closed containers may rupture due to build-up of pressure when exposed to extreme heat. Fight fire from a safe distance. As in any fire, wear self-contained breathing apparatus (pressure demand, OSHA/NIOSH approved or equivalent) and full protective gear.**SECTION 6: ACCIDENTAL RELEASE MEASURES**Large Spills: Remove all sources of ignition (sparks, open flames, etc.). Wear self-contained breathing apparatus and appropriate personal protective equipment. Ventilate area and contain spill with sand or other absorbent material. Collect spill by scooping up liquids and absorbent material and place in a sealed metal container for proper disposal. Do not flush to sewer. Prevent material from entering storm sewers, ditches that lead to waterways and ground.Small Spills: Absorb spill with absorbent material, then place in a sealed metal container for proper disposal.**SECTION 7: HANDLING AND STORAGE**

Avoid prolonged or repeated contact with eyes, skin, and clothing. Wash hands before eating. Use with adequate ventilation. Avoid breathing product vapor or mist. Do not reuse this container. Store in a cool dry place away from heat, sparks and flame. Keep container closed when not in use. Do not store in direct sunlight.

KEEP OUT OF REACH OF CHILDREN.**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure Guidelines:

CHEMICAL NAME	ACGIH TLV	OSHA PEL	ACGIH STEL
Silver	0.1 mg/m ³	0.01mg/m ³	NA
Silicone Oil	NA	NA	NA

Work/Hygienic Practices: Good general ventilation should be sufficient to control airborne levels. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. Wear safety glasses with side shields or goggles and rubber or other chemically resistant gloves when handling this material.NFPA and HMIS Codes:

	NFPA	HMIS
Health	1	1
Flammability	1	1
Reactivity	0	0
Personal Protection	-	B

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIESPhysical State: Silver/gray GreaseOdor: OdorlesspH: NAVapor Pressure: NAVapor Density: NAPercent Volatile: < 2.0%Solubility in Water: <1.0%Specific Gravity: 2.4-2.7Evaporation Rate: <1

(Butyl acetate=1)

Boiling Range: NA

SECTION 10: STABILITY AND REACTIVITY INFORMATION

Stability: This product is stable.

Conditions to Avoid: Contamination with incompatible materials.

Incompatibility: Avoid strong oxidizing agents, strong acids and bases.

Products of Decomposition: Carbon monoxide, carbon dioxide, silicon dioxide, oxides of nitrogen, and incompletely burned hydrocarbons which may include traces of formaldehyde.

Hazardous Polymerization: May not occur.

Conditions to avoid: NA

SECTION 11: TOXICOLOGICAL INFORMATION

Ingredients	LD50	LD50	LC50 (ppm)
	(rat) Oral	(rbt) Dermal	(rat) Inhalation
Silver (metallic)	> 10000 mg/kg (mouse)	NA	NA
Silicone Oil	NA	NA	NA
Cancer Information: No ingredients listed as human carcinogens by NTP or IARC			
Reproductive effects: none		Teratogenic effects: none	
		Mutagenic effects: none	

SECTION 12: ECOLOGICAL INFORMATION**Environmental Impact Information**

Avoid runoff into storm sewers and ditches which lead to waterways. Water runoff can cause environmental damage.

REPORTING

US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is: **1-800-424-8802**

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with all federal, state and local regulations. Water runoff can cause environmental damage.

SECTION 14: TRANSPORTATION INFORMATIONAir and Ground Shipments:

Adhesives, sealants
Not Regulated

SECTION 15: REGULATORY INFORMATION**SECTION 313 SUPPLIER NOTIFICATION**

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372).

Silver	CAS# 7440-22-4	55.0-85.0%
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This information should be included on all MSDSs copied and distributed for this material.

TOXIC SUBSTANCES CONTROL ACT (TSCA).

All ingredients of this product are listed on the TSCA Inventory.

WHMIS: Class D2B

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION

Normal ventilation for standard manufacturing practices is usually adequate. Local exhaust should be used when large amounts are released.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.