Parker Chomerics

SAFETY DATA SHEET

1. Identification

Product identifier	**CHO-LUBE® 4220 Conductive Grease**
Other means of identification	
SDS number	PHC-123
Product code	54-02-4220-0000; 54-01-4220-0000
Recommended use	Conductive silicone grease.
Recommended restrictions	No restrictions on use known.
Chemical family	Mixture of: Inorganic substances in powdered form; Polydimethylsiloxane
Manufacturer	
Company name	Parker Hannifin Corp.
Address	Chomerics Division 77 Dragon Court Woburn, MA, USA 01888
Telephone	(781) 935 4580
Website	www.chomerics.com
E-Mail	chomailbox@parker.com
Supplier information	Refer to Manufacturer
Emergency phone number	INFOTRAC - (800) 535-5053 (Within Continental US); (352) 323-3500 (Outside US)

2. Hazard(s) identification

This material is not classified as hazardous under OSHA regulations (29CFR 1910.1200) (Hazcom 2012).

Physical hazards	This mixture does not meet the classification criteria according to OSHA Hazcom 2012.
Health hazards	This mixture does not meet the classification criteria according to OSHA Hazcom 2012.
Environmental hazards	Not currently regulated by OSHA, refer to Section 12 for additional information.
OSHA defined hazards	This mixture does not meet the classification criteria according to OSHA Hazcom 2012.
Label elements	None required according to OSHA Hazcom 2012.
Signal Word	None required according to OSHA Hazcom 2012.
Hazard statement(s)	None required according to OSHA Hazcom 2012.
Precautionary statement(s)	
Prevention	None required according to OSHA Hazcom 2012.
Response	None required according to OSHA Hazcom 2012.
Storage	None required according to OSHA Hazcom 2012.
Disposal	None required according to OSHA Hazcom 2012.
Hazard(s) not otherwise Classified (HNOC)	No OSHA defined hazard classes. Other hazards which do not result in classification: Toxic fumes, gases or vapors may evolve on burning. May be mildly irritating to skin, eyes and respiratory system. Inhalation of fumes may result in metal fume fever, a flu-like illness. May cause gastrointestinal irritation. Silver in the form of a finely divided dust may cause discoloration in contact with skin, and argyrosis in case of inhalation. Environmental precautions: Avoid release to the environment. See ECOLOGICAL INFORMATION, Section 12.
Supplemental information	Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Keep away from incompatibles. Keep away from extreme heat and direct flame.

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3. Composition/information on ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	Concentration (%)
silver	Silver metal Argentum	7440-22-4	70.0 - 85.0
Silica, amorphous fumed	Synthetic Amorphous, Pyrogenic Silica	112945-52-5	0.1 - 0.5

The exact concentrations of the above listed chemicals are being withheld as a trade secret.

4. First-aid measures

Inhalation	If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stops, provide artificial respiration. If irritation or symptoms develop, seek medical attention.
Skin contact	For skin contact, wash with soap and water while removing contaminated clothing. If irritation or symptoms develop, seek medical attention. Wash contaminated clothing before reuse.
Eye contact	Rinse thoroughly with plenty of water, also under the eyelids. If irritation or symptoms develop, seek medical attention.
Ingestion	Do not induce vomiting. Never give anything by mouth to a person who is unconscious or is having convulsions. Call a physician.
Most important symptoms and effects, both acute and delayed	Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging and tearing. Direct skin contact may cause slight or mild, transient irritation. Direct skin contact may cause temporary redness. Mild respiratory irritant. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. Inhalation of fumes may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Silver in the form of a finely divided dust may cause discoloration in contact with skin, and argyrosis in case of inhalation.
Indication of any immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.
Unsuitable extinguishing media	Do not use water jet, as this may spread burning material.
Specific hazards arising from the chemical	Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.
Special protective equipment and precautions for fire-fighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.
Fire-fighting equipment/instructions	Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Not considered flammable. However, may burn if exposed to extreme heat and flame.

Hazardous combustion products

Carbon oxides; Metal oxides; formaldehyde; Silicon oxides; Other unidentified organic compounds

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep people away from and upwind of spill/leak. Restrict access to area until completion of clean-up. Wear appropriate protective equipment. Refer to protective measures listed in sections 7 and 8.

Methods and materials for containment and cleaning up

Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. Cover any spilled material with non-combustible absorbent material, such as vermiculite or sand, then place absorbent material into a container for later disposal (see Section 13). Pick up and transfer to properly labeled containers. Contaminated absorbent material may pose the same hazards as the spilled product. Contact the proper local authorities.

Environmental precautions

Prevent product from entering drains, sewers, waterways and soil.

7. Handling and storage

Precautions for safe handling

Use with adequate ventilation. Avoid breathing dust, fume or vapors. Wear suitable protective equipment during handling. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and direct flame. Keep away from incompatibles. Keep containers tightly closed when not in use. Wash thoroughly after handling. Empty containers retain residue (liquid and/or vapor) and can be dangerous.

Conditions for safe storage, including any incompatibilities

Store in cool/well-ventilated place. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Do not store near any incompatible materials (see Section 10).

8. Exposure controls/personal protection

Occupational exposure limits

U.S. OSHA Exposure Limits (29 CFR 1910)

	Type	Value
silver (CAS 7440-22-4)	TWA	0.01 mg/m³
Silica, amorphous fumed (CAS 112945-52-5)	TWA	20 mppcf

US. ACGIH Threshold Limit Values

	Type	Value
silver (CAS 7440-22-4)	TWA	0.1 mg/m³ (dust and fume)
Silica, amorphous fumed (CAS 112945-52-5)	TWA	10 mg/m³ (inhalable); 3 mg/m³ (respirable) (PNOS)

US. NIOSH: Pocket Guide to Chemical Hazards

	Type	Value
silver (CAS 7440-22-4)	TWA	0.01 mg/m³ (dust)

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Use with adequate ventilation. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. In case of insufficient ventilation wear suitable respiratory equipment.

Individual protection measures, such as personal protective equipment

Eye / face protection	Wear as appropriate: Safety glasses with side shields; Tightly fitting safety goggles.
Skin protection	
Hand protection	Gloves impervious to the material are recommended. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Wear sufficient clothing to prevent skin contact.
Other	Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.
Respiratory protection	If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29CFR 1910.134). Advice should be sought from respiratory protection specialists.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Avoid breathing dust, fume or vapors. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	
Physical state	Paste
Form	Thick paste.
Color	Silver
Odor	Mild odor.
Odor threshold	N/Av
pH	N/Av
Melting point /freezing point	N/Av
Initial boiling point and boiling range	N/Av
Flash point	> 93.3°C (200°F) (based on ingredients) closed cup
Evaporation rate	N/Av
Flammability (solid, gas)	Not considered flammable.
Lower flammability/explosive limit	N/Av
Upper flammability/explosive limit	N/Av
Vapor pressure	N/Av
Vapor density	> 1 (Air = 1.0)
Relative density	> 1
Solubility(ies)	
Other solubility(ies)	N/Av
Solubility (water)	Insoluble.
Partition coefficient (n-octanol/water)	N/Av
Auto-ignition temperature	N/Av
Decomposition temperature	N/Av
Viscosity	N/Av
Other information	
Explosive properties	Not explosive
Oxidizing properties	None known.

Specific gravity	> 1
VOC	N/Av
Volatilities %	N/Av
Other physical/chemical data	No additional information.

10. Stability and reactivity

Reactivity	Not normally reactive.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Direct sources of heat. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.
Incompatible materials	Strong oxidizing agents; Strong acids; Strong bases
Hazardous decomposition products	None known, refer to hazardous combustion products in Section 5.

11. Toxicological information

Information on likely routes of exposure

Routes of entry inhalation	Mild respiratory irritant Inhalation of fumes may result in metal fume fever, a flu-like illness. .
Routes of entry skin & eye	Causes little or no irritation.
Routes of entry ingestion	May cause gastrointestinal irritation.
Routes of exposure skin absorption	Not expected to be absorbed through the skin.
Most important symptoms/effects, acute and delayed	Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging and tearing. Direct skin contact may cause slight or mild, transient irritation. Direct skin contact may cause temporary redness. Mild respiratory irritant. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. Inhalation of fumes may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Silver in the form of a finely divided dust may cause discoloration in contact with skin, and argyrosis in case of inhalation.

Information on toxicological effects

Acute toxicity	Not expected to be hazardous by OSHA criteria. There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

Components	Species	Test Results
silver		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg (No mortality)
Inhalation		
LC50	Rat	> 5.16 mg/L (dust) (No mortality)
Oral		
LD50	Rat	> 2000 mg/kg (No mortality)

Silica, amorphous fumed

Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Inhalation		
LC50	Rat	> 2.08 mg/L (no deaths) (dust)
Oral		
LD50	Rat	3160 mg/kg

Skin Corrosion/Irritation	Not expected to be hazardous by OSHA criteria.
Serious eye damage/irritation	Not expected to be hazardous by OSHA criteria.
Respiratory or skin sensitization	Not expected to be a skin or respiratory sensitizer.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not expected to have carcinogenic effects. No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP. See below for ingredients present on regulatory lists.

IARC Monographs. Overall Evaluation of Carcinogenicity

Silica, amorphous fumed(CAS 112945-52-5) Group 3 (Not Classifiable)

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not expected to be hazardous by OSHA criteria.
Specific target organ toxicity - repeated exposure	Not expected to be hazardous by OSHA criteria.
Chronic effects	Silver in the form of a finely divided dust may cause discoloration in contact with skin, and argyrosis in case of inhalation.
Aspiration toxicity	Not expected to be hazardous by OSHA criteria.
Further information	None known or reported by the manufacturer.

12. Ecological information

Ecotoxicity	No data is available on the product itself. Should not be released into the environment. Contains: Silver. The acute toxicity of silver to aquatic species varies drastically by the chemical form and correlates with the availability of free ionic silver. Aquatic toxicity is highly variable not only by organism but with physical and chemical characteristics of the water itself. See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

		Toxicity to Fish		
Ingredients	CAS No	LC50 / 96h	NOEC / 21 day	M Factor
silver	7440-22-4	N/Av	N/Av	None.
Silica, amorphous fumed	112945-52-5	N/Av	N/Av	None.

		Toxicity to Daphnia		
Ingredients	CAS No	EC50 / 48h	NOEC / 21 day	M Factor
silver	7440-22-4	N/Av	N/Av	None.
Silica, amorphous fumed	112945-52-5	> 10 000 mg/L/24hr (Daphnia magna)	N/Av	None.

Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
silver	7440-22-4	N/Av	N/Av	None.
Silica, amorphous fumed	112945-52-5	> 10 000 mg/L/72hr (Green algae)	N/Av	None.

Persistence and degradability

The product itself has not been tested.
Contains the following chemicals which are not readily biodegradable: silver; Amorphous silica.

Bioaccumulation potential

The product itself has not been tested. See the following data for ingredient information.

Components	Partition coefficient n-octanol/water (log Kow)	Bioconcentration factor (BCF)
Silica, amorphous fumed (CAS 112945-52-5)	0.53(calculated)	N/Av

Mobility in soil

The product itself has not been tested.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal consideration

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose of in accordance with local regulations.

Local disposal regulations

Dispose in accordance with all applicable federal, state, territory and local regulations.

Hazardous waste code

If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

Waste from residues / unused products

Dispose of contents/container in accordance with local regulation. This material and its container must be disposed of in a safe way.

Contaminated packaging

Empty containers should be taken for local recycling or waste disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

49CFR/DOT

Not regulated as dangerous goods

ICAO/IATA

Not regulated as dangerous goods

IMDG

Not regulated as dangerous goods

General information

Appropriate advice on safety must accompany the package.
This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. Regulatory information

US Federal information:

Components listed below are present on the following U.S. Federal chemical lists:

Ingredients	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
silver	7440-22-4	Yes	1000 lb/454 kg	None.	Yes	1%
Silica, amorphous fumed	112945-52-5	NL	None.	None.	No	N/Ap

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - NO
Delayed Hazard - NO
Fire Hazard - NO
Pressure Hazard - NO
Reactivity Hazard - NO

US state regulations

The following chemicals are specifically listed by individual States:

Ingredients	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
silver	7440-22-4	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Silica, amorphous fumed	112945-52-5	No	N/Ap	No	No	No	No	No	No

Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

International Inventories

Components listed below are present on the following international inventory lists:

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
silver	7440-22-4	231-131-3	Present	Present	Not listed	KE-31261	Present	HSR003077
Silica, amorphous fumed	112945-52-5	231-545-4 (as Silicon dioxide)	Present	Present	(1)-548	KE-30953	Present	May be used as a single component chemical under an appropriate group standard

16. Other information, including date of preparation or last revision

Issue date 12/17/2015
Version # 1
Legend
ACGIH: American Conference of Governmental Industrial Hygienists
AICS: Australian Inventory of Chemical Substances
CA: California

CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CSA: Canadian Standards Association
DOT: Department of Transportation
EC50: Effective Concentration 50%.
EINECS: European Inventory of Existing Commercial chemical Substances
ENCS: Existing and New Chemical Substances
EPA: Environmental Protection Agency
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IBC: Intermediate Bulk Container
IECSC: Inventory of Existing Chemical Substances
IMDG: International Maritime Dangerous Goods
IOC: Inventory of Chemicals
KECI: Korean Existing Chemicals Inventory
KECL: Korean Existing Chemicals List
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MN: Minnesota
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NOEC: No observable effect concentration
NTP: National Toxicology Program
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
PICCS: Philippine Inventory of Chemicals and Chemical Substances
RCRA: Resource Conservation and Recovery Act
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

Disclaimer

Prepared by: ICC The Compliance Center Inc.
http://www.thecompliancecenter.com

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Bibliography

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5. US EPA Title III List of Lists - March 2015 version.
6. California Proposition 65 List - December 4, 2015 version.
7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2015.