

Safety Data Sheet

Product No. 16062, 16062-15 PELCO® Conductive Silver Paint

Issue Date (04-28-15)

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Section 1: Product and Company Identification

Product Name: PELCO® Conductive Silver Paint

Synonym: None

Company Name

Ted Pella, Inc., P.O. Box 492477, Redding, CA 96049-2477

Domestic Phone (800) 237-3526 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)

International Phone (01) (530) 243-2200 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)

Chemtree Emergency Number 1-800-424-9300 24 hrs a day.

Section 2: Hazard Identification

2.1 Classification of the substance or mixture

GHS Pictograms



GHS02 GHS08 GHS07 GHS09

GHS Categories

GHS02	Flammable Flam. Liq. 2: H225
GHS08	Health Hazard Rep. Tox. 2: H361 Spec. Organ Tox., Repeated exposure 2: H373
GHS07	Irritant Spec. Target Organ Tox., Repeated exposure 3: H336 Eye irritation 2: H319 Skin irritation 2: H315
GHS09	Environmental Hazard Chronic Aqua. Tox. 1: H410

2.2 Label Elements

Signal word: DANGER

Hazard statements

- H225 Highly flammable liquid and vapor.
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H336 May cause drowsiness or dizziness
- H361 Suspected of damaging fertility or the unborn child.
- H373 May cause damage to organs (inner ear or central nervous system) through prolonged or repeated exposure.
- H410 Very toxic to aquatic life with long-lasting effects

Precautionary statements

- P102 Keep out of reach of children.
- P210 Keep away from heat, hot surfaces, sparks, flames, and other ignition sources. No Smoking.
- P233 Keep container tightly closed.
- P240 Ground and bond container and receiving equipment.
- P241 Use explosion-proof equipment.
- P243 Take action to prevent static discharges.
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260+P271 Do not breathe mist/vapors/spray. Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/eye protection/face protection.
- P264 Wash hands thoroughly after handling.
- P273 Avoid release to the environment.
- P370+P378 In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
- P303+P361+P352 IF ON SKIN (on hair): Take off immediately all contaminated clothing. Wash with plenty water.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P304+P340+P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P391 Collect spillage.
- P403+P235 Store in well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance to local/regional/international regulations.

2.3 Other Hazards

Hazards not otherwise classified

Defats skin: Repeated exposure may cause skin dryness or cracking.

Argyria: Long-term exposure to silver powder or compounds can lead to an irreversible blue-grey discoloration of the skin.

HMIS Hazard Rating: Health: 2; Flammability: 3 Physical Hazard: 0

NFPA Hazard Rating: Health: 2; Fire: 3 Reactivity: 0

(0=least, 1=Slight, 2=Moderate, 3=High, 4=Extreme)

Emergency overview

Appearance: Metallic silver

Immediate effects:

If inhaled: Dizziness, drowsiness, headaches, nausea, cough, blurred vision, fatigue.

Eye contact: Irritation, redness, pain, blurred vision.

Skin contact: Irritation, pain, redness.

If swallowed: Nausea, vomiting, abdominal cramps, irritation, burning sensation, or dizziness.

Potential health effects

Primary Routes of entry: Eyes, ingestion, inhalation, and skin.

Signs and Symptoms of Overexposure:

Eyes: Causes severe eye irritation if splashed in eyes or exposed to vapors. May also cause eye redness or pain. The coating contains mechanically abrasive particles.

Skin: May cause mild to moderate skin irritation.

Ingestion: Not a likely route of exposure. Harmful if swallowed. It is a central nervous system depressant. It may cause irritation and burning sensation

Inhalation: Solvents may cause respiratory tract irritation, headache, and possible dizziness.

Chronic Exposure: Prolonged and repeated exposure to the solvents used may cause dermatitis, defatting of the skin, adverse central nervous systems effects. Extreme doses can cause bladder, liver, and kidney damage. Long term accumulation of silver can lead to Argyria, which is an irreversible blue-grey discoloration of the skin.

Ingestion of paint material or inhalation of its mist or vapors during pregnancy may increase the chances of fetal death and of developmental defects..

Chemical Listed As Carcinogen Or Potential Carcinogen: None

See Toxicological Information (Section 11)

Potential environmental effects

See Ecological Information (Section 12)

Section 3: Composition / Information on Ingredients

Principle Hazardous Component(s) (chemical and common name(s)) (Cas. No)	%	OSHA PEL mg/m3	ACGIH TWA mg/m3	NTP	IARC	OSHA regulated
Silver (7440-22-4)	40-70	0.01	0.1	No	No	No
Toluene (108-88-3)	7-13	200ppm	20ppm	No	Group 3	No
Acetone (67-64-1)	5-10	1000ppm	500ppm	No	No	No
Isobutyl acetate (110-19-0)	1-5	NE	NE	No	No	No
2-heptanone (110-43-0)	1-5	NE	NE	No	No	No
Ethanol (64-17-5)	1-5	1000ppm	1000ppm	No	No	No
Ethyl acetate (141-78-6)	1-5	NE	400ppm	No	No	No

Section 4: First Aid Measures

If accidental overexposure is suspected

Eye(s) Contact:

Symptoms: Immediate: irritation, redness.

Response: Rinse cautiously with water for 15 minutes or more. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Skin Contact:

Symptoms: Immediate: redness, mild irritation, dry skin.

Response: Take off contaminated clothing and wash it before reuse. Wash with plenty of water. If skin irritation or rash persists: Get medical attention.

Inhalation:

Symptoms: Immediate: dizziness, drowsiness, headaches, nausea, cough, unconsciousness.

Response: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing. If feeling unwell: Call a POISON CENTER/doctor. If exposed or concerned: Get medical advice.

Ingestion:

Symptoms: Immediate: nausea, sore throat, diarrhea, drowsiness, or dizziness.

Response: Rinse mouth. Do NOT induce vomiting. If exposed or concerned: Get medical advice.

Note to physician

Treatment: ND

Medical Conditions generally Aggravated by Exposure: ND

Section 5: Fire Fighting Measures

Flash Point: -17°C (1.4°F). Lower bound FP estimate is based on the closed cup value for the acetone component.

Flammable Limits: LFL 1.8% UFL 13% (in volume %)

Auto-ignition point: $\geq 363^{\circ}\text{C}$ (685°F). Values based on ethanol, which is the component with the lowest auto-ignition value.

Fire Extinguishing Media: Use dry chemical, carbon dioxide, water spray, or chemical foam to extinguish.

Special Fire Fighting Procedures: Wear self-contained breathing apparatus and full fire-fighting turn-out gear for fire-fighting

Unusual Fire and Explosion Hazards: Will burn if involved in a fire. Vapors are heavier than air, and may travel to sources of ignition near the ground. Vapors may travel long distances and ignite at an ignition source, which can cause a flashback or an explosion. Prevent fire-fighting wash from entering waterway or sewer system.

Hazardous combustion products: Produces CO, CO₂, nitrous oxides and smoke.

DOT Class: Flammable

Section 6: Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled: Remove all sources of ignition. Provide adequate ventilation. Wear appropriate personal protection.

Precautions for response: Do not breathe the mist/spray/vapors. Remove or keep away all sources of extreme heat or open flames.

Cleaning: Collect liquid 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 in container. Wash spill area with soap and water to remove the last traces of residue.

Environmental precautions: Avoid releasing to the environment. Prevent spill from entering drains and waterways.

Recommendation: A metal container is suggested. Dispose of spill waste according to Section 13

Waste Disposal Methods: Dispose of waste according to Federal, State and Local Regulations.

Section 7: Handling and Storage

Precautions to be taken in Handling and Storage.

Prevention: Keep out of reach of children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, flames, and other ignition sources. No Smoking. Do not breathe mist/vapors/spray. Use only outdoors or in a well-ventilated area. Ground and bond container and receiving equipment. Use explosion-proof equipment. Take action to prevent static discharges. Do not eat, drink, or smoke when using this product. Keep container tightly-closed. Store locked-up.

Handling: Wear protective gloves/clothing/eye protection. Take off contaminated clothing and wash it before reuse. Wash hands thoroughly after handling. Avoid release to the environment.

Storage temperature: Keep cool.

Recommendation: Keep in a dry and clean area, away from incompatible substances.

Storage Pressure: NA

Section 8: Exposure Controls / Personal Protection

Routes of entry: Inhalation, eye contact, skin contact, and ingestion.

Substances with occupational exposure limit values

Chemical name	Country/provinces	Long term exposure limits (PEL)	Short term exposure limits (STEL)
Silver	ACGIH	0.1 mg/m ³	Not established
	USA OSHA PEL	0.01 mg/m ³	Not established
	Canada AB	0.1 mg/m ³	Not established
	Canada BC	0.01 mg/m ³	0.03 mg/m ³
	Canada ON	0.1 mg/m ³	Not established
	Canada QC	0.1 mg/m ³	Not established
Toluene	ACGIH	20 ppm	Not established
	USA OSHA PEL	200 ppm	300 ppm
	Canada AB	50 ppm	Not established
	Canada BC	20 ppm	Not established
	Canada ON	20 ppm	Not established
	Canada QC	100 ppm	150 ppm
Acetone	ACGIH	500 ppm	750 ppm
	USA OSHA PEL	1000 ppm	Not established
	Canada AB	500 ppm	750 ppm
	Canada BC	250 ppm	500 ppm
	Canada ON	500 ppm	750 ppm
	Canada QC	750 ppm	1000 ppm
Isobutyl acetate	ACGIH	150 ppm	Not established
	USA OSHA PEL	150 ppm	Not established
	Canada AB	150 ppm	Not established
	Canada BC	150 ppm	Not established
	Canada ON	150 ppm	187 ppm
	Canada QC	150 ppm	Not established
Heptan-2-one	ACGIH	50 ppm	Not established
	USA OSHA PEL	100 ppm	Not established
	Canada AB	50 ppm	Not established
	Canada BC	50 ppm	Not established
	Canada ON	25 ppm	Not established
	Canada QC	50 ppm	Not established
Ethanol	ACGIH	Not established	1000 ppm
	USA OSHA PEL	1000 ppm	Not established
	Canada AB	1000 ppm	Not established
	Canada BC	Not established	1000 ppm
	Canada ON	Not established	1000 ppm
	Canada QC	1000 ppm	Not established
Ethyl acetate	ACGIH	400 ppm	Not established
	USA OSHA PEL	400 ppm	Not established
	Canada AB	400 ppm	Not established
	Canada BC	150 ppm	Not established
	Canada ON	400 ppm	Not established
	Canada QC	400 ppm	Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database2 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.

Engineering Controls

Ventilation required: Keep airborne concentrations below exposure limits given in Section 3.

Recommendation: Respect the time weighted average of 20 ppm for toluene.

Personal Protection Equipment

Respiratory protection: For over-exposures up to 10 x OEL of mist/vapors/spray, wear respirator such as a half-mask respirator with organic vapor cartridges. Above 10 x OEL, use a positive pressure, air-supplied respirator or a self-contained breathing apparatus.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator has filter cartridges appropriate for the ingredients listed in section 3 of this SDS, and that the respirator is fitted to the employee by a professional.

Protective gloves: For likely contacts, use of protective butyl rubber, fluorinated rubber, or other chemically resistant gloves. For incidental contacts, use nitrile, neoprene, PVC gloves, or other chemically resistant gloves.

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.

Eye protection: Wear appropriate protective eyeglasses or chemical safety goggles.

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

General hygiene considerations: Wash hands thoroughly with water and soap after handling.

Additional clothing and/or equipment: ND

Exposure Guidelines

See Composition/Information on Ingredients (Section 3)

Section 9 Physical and Chemical Properties

Appearance and Physical State: Metallic silver grey liquid.

Odor (threshold): Benzene like, sweetish (2 ppm)

Specific Gravity (H₂O=1): 2.10

Vapor Pressure: 100 hPa [78 mmHg] @20°C

Vapor Density (air=1): ≥2

Percent Volatile by volume: ND

VOC (Volatile Organic Content): 27% (466 g/L)

Evaporation Rate (butyl acetate=1): Fast

Boiling Point: ≥56 °C

Freezing point / melting point: NE

Partition Coefficient: NE

Viscosity: NE

pH: 7

Solubility in Water: Partial

Molecular Weight: NA

Section 10: Stability and Reactivity

Stability: Chemically stable at normal temperatures and pressures.

Conditions to Avoid: Ignition sources, open flames, excessive heat, and incompatible Substances.

Materials to Avoid (Incompatibility): Strong oxidizing agents, strong acids, strong bases,.

Hazardous Decomposition Products: Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information

Results of component toxicity test performed:

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation a)
Silver	>5g/Kg Guinea Pig	NE	NE	NE
Toluene	636 mg/kg Rat	12,124 mg/kg Rabbit	49 g/m ³ 4h Rat	200 ppm Human
Acetone	5,800 mg/kg Rat 5,340 mg/kg Rabbit	20 mL/kg Rabbit	16,000 ppm 6h Rat	10 mg/m ³ 6 h Human 30 g/m ³ 2 h Rat

Isobutyl acetate	13,400 mg/kg Rat	>17,400 mg/kg Rabbit	>13.24 mg/L 6h Rat	8 000 ppm 4h Rat LCLo b)
2-heptanone	1,670 mg/kg Rat	12,600 µL/kg Rabbit	NE	7,000 mg/m ³ 4 h Guinea pig
Ethanol	7,060 mg/kg Rat	NE	20,000 ppm 10 h Rat	2,500 mg/m ³ 20 min Human 50,000 mg/m ³ 2 h Mouse
Ethyl Acetate	5,620 mg/kg Rat	>20,000 µL/kg Rabbit	45 g/m ³ 2 h Mouse	1,105 mg/m ³ 4 h Rat

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

Other Toxicological Effects:

Skin corrosion/irritation

Toluene is a known serious skin irritant.

Serious eye damage/irritation

Toluene, acetone, isobutyl acetate, ethanol, and ethyl acetate are known serious eye irritants.

Sensitization

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Mutagenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Toluene presents reproductive and developmental hazards at high doses (>13,000 mg/day).

Teratogenicity

Harmful to unborn fetus.

STOT-single exposure

Toluene, acetone, isobutyl acetate, 2-heptanone, and ethyl acetate can affect the central nervous system by inhalation causing drowsiness or dizziness.

STOT-repeated exposure

Contains 2% toluene, which is a Cat 2 STOT repeated exposure hazard for the central nervous system and cochlear systems. Toluene is ototoxic chemicals according to rat studies: inhalation exposure in the presence of noise may lead to cochlear impairment.

Aspiration hazard

Based on available data, the classification criteria are not met. There is less than 10% category 1 components, and the kinematic viscosity is >20.5 mm²/s at 40°C.

Section 12: Ecological Information

Acute ecotoxicity: Very toxic to aquatic life.

Chronic Ecotoxicity: Very toxic to aquatic life with long-lasting effects. Avoid release to the environment. Collect spillage.

Biodegradability: Expected to be biodegradable. The volatile solvent constituents will oxidize rapidly in air by photochemical reaction.

Chemical Fate Information: ND

Section 13 Disposal Considerations

RCRA 40 CFR 261 Classification: ND

Federal, State and local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.

Section 14: Transportation Information

Classified as Consumer Commodity. Ground USA: - 4L size and smaller

US DOT Information: Proper shipping name: Paint

Hazard Class: 3

Packaging group: II

UN Number: UN1263

IATA: Proper shipping name: Paint

Hazard Class: 3

Packing group: II

UN Number: UN1263

Marine Pollutant: Yes.

Canadian TDG: Ground Canada: 4L size and smaller: Classified as Consumer Commodity.

Section 15: Regulatory Information

United States Federal Regulations

MSDS complies with OSHA's Hazard Communication Rule 29, CFR 1910.1200.

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 contains toluene (CAS# 108-88-3), which is listed as hazardous air pollutants.

SARA Title III: EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45

This product contains toluene (CAS# 108-88-3) and silver (CAS# 7440-22-4), which 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.

CERCLA: ND

State Regulations

California Proposition 65: Warning! This product is or contains chemical(s) known to the state of California to cause reproductive harm. This product contains toluene, which is listed as reproductively toxic.

This product contains ethanol, which is listed as reproductively toxic. It is also listed as a carcinogen when in an alcoholic beverage.

International Regulations

Canada WHMIS: Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)

All hazardous ingredients are listed on the DSL/NDSL.

Europe EINECS Numbers: ND

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 (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

Label Information: Flammable

Abbreviations used in this document

NE= Not established

NA= Not applicable
NIF= No Information Found
ND= No Data

Disclaimer

Ted Pella, Inc. makes no warranty of any kind regarding the information furnished herein. Users should independently determine the suitability and completeness of information from all sources. While this data is presented in good faith and believed to be accurate, it should be considered only as a supplement to other information gathered by the user. It is the User's responsibility to assure the proper use and disposal of these materials as well as the safety and health of all personnel who may work with or otherwise come in contact with these materials.

MSDS Form 0013F1 V2