

Safety Data Sheet

Product No. 16032, 16032-20 PELCO® Colloidal Silver Paste, Conductive

Issue Date (03-04-14) Version number 2

Review Date (12-19-14)

Section 1: Product and Company Identification

Product Name: PELCO® Colloidal Silver Paste, Conductive

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)

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

Section 2: Hazard Identification

Classification of the substance or mixture.

The product is classified and labeled according to the Globally Harmonized System (GHS).

GHS Pictograms:



Flammable

Health hazard

Irritant

GHS Categories:

GHS02 Flame Liquid, H225 Highly flammable liquid and vapor.

GHS08 Health hazard Repr., 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

GHS07 Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Signal Word: DANGER

Hazard-determining components of labeling:

Toluene

(R)-p-mentha-1,8-diene

Hazard statements

H225 Highly flammable liquid and vapor.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H361 Suspected of damaging fertility or the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

· Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations

Health Effects:

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

HMIS® Hazard Rating: Health: 2; Fire: 3; Reactivity: 0

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

Results of PBT and vPvB assessment:

PBT: NA

vPvB: NA

Emergency overview

Appearance: Grey pasty liquid.

Immediate effects: Causes skin irritation. Causes serious eye irritation

Potential health effects

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

Signs and Symptoms of Overexposure: May cause damage to organs through prolonged or repeated exposure.

Eyes: Causes serious eye irritation.

Skin: Causes skin irritation. May cause an allergic skin reaction.

Ingestion: May cause damage to organs through prolonged or repeated exposure.

Inhalation: May cause damage to organs through prolonged or repeated exposure.

Chronic Exposure: May cause damage to organs through prolonged or repeated exposure.

Chemical Listed As Carcinogen Or Potential Carcinogen: None of the ingredients is listed.

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 TLV mg/m3	NTP	IARC	OSHA regulated
Silver Powder (7440-22-4)	50-75	0.01	0.01	No	ND	No
Toluene (108-88-3)	10-25	200 ppm	75 20 ppm	No	3	No
Ethyl Acetate (141-78-6)	5-10	1400 400 ppm	1440 400 ppm	No	ND	No
R)-p-mentha-1,8-diene (5989-27-5)	2-5	NIF	NIF	No	3	No
Ethanol, denatured (64-17-5)	2.5	1900 1000 ppm	1880 1000 ppm	No	1	No
Propan-2-ol (67-63-0)	2.5	980 400 ppm	984 400 ppm	No	3	No
Bornan-2-one (76-22-2)	2.5	2	19 3 ppm	No	ND	No

Section 4: First Aid Measures

If accidental overexposure is suspected

Eye(s) Contact: Rinse opened eye for several minutes under running water.

Skin Contact: Immediately wash with water and soap and rinse thoroughly

Inhalation: Supply fresh air and to be sure call for a doctor. In case of unconsciousness place patient stably in side position for transportation.

Ingestion: If symptoms persist consult doctor.

Note to physician

Treatment: No further relevant information available

Medical Conditions generally Aggravated by Exposure: No further relevant information available.

Section 5: Fire Fighting Measures

Flash Point: -1 °C (30 °F) (calc.)

Ignition temperature: 255 °C (491 °F) (calc.)

Flammable Limits: Lower: 1.2 Vol % (calc.) Upper: 7.0 Vol % (calc.)

Auto-ignition point: Product is not self-igniting.

Fire Extinguishing Media: CO₂, sand, extinguishing powder. **Do not use water.**

Special Fire Fighting Procedures: · For safety reasons unsuitable extinguishing agents: Water, Water with full jet.

Unusual Fire and Explosion Hazards: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

Hazardous combustion products: ND

DOT Class: Flammable

Section 6: Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled: Large Spill:

Personal precautions, protective equipment and emergency procedures: Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation: Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective clothing.

Environmental precautions: Prevent seepage into sewage system, work pits and cellars.

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Do not flush with water or aqueous cleansing agents.

Dispose contaminated material as waste or recycle Silver

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: Ensure good ventilation/exhaustion at the workplace. Prevent formation of aerosols. Keep ignition sources away - Do not smoke. Protect against electrostatic charges. Keep receptacle tightly sealed. Store in cool, dry conditions in well-sealed receptacles.

Prevent from drying out. Store away from foodstuffs.

Storage temperature: Store in a cool location.

Storage Pressure: NA

Section 8: Exposure Controls / Personal Protection

Engineering Controls

Ventilation required: Use chemical fume hood

Personal Protection Equipment

Respiratory protection: Use suitable respiratory protective device in case of insufficient ventilation. Filter A2B2P3.

Protective gloves: Only use chemical-protective gloves with CE-labeling of category III.

Skin protection: Gloves and protective work clothing

Eye protection: Tightly sealed goggles.

Additional clothing and/or equipment: General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work. Avoid contact with the skin.

Avoid contact with the eyes and skin.

Exposure Guidelines

See Composition/Information on Ingredients (Section 3)

Section 9 Physical and Chemical Properties

Appearance and Physical State: Pasty grey liquid

Odor (threshold): Mild, (NE)
Specific Gravity (H₂O=1): ND
Vapor Pressure (mm Hg): 29 hPa (22 mm Hg) (calc.)
Vapor Density (air=1): NE
Percent Volatile by volume: ND
Viscosity: Dynamic at 20 °C (68 °F): ~ 50000 mPas
Solvent content: Organic solvents: 30 - 40 %, Water: 0.0 %
Solids content (dried): 60 - 70 %

Evaporation Rate (butyl acetate=1):
Boiling Point: 75 °C (167 °F) (calc.)
Freezing point / melting point: NE
pH: NA
Solubility in Water: Not miscible or difficult to mix.
Molecular Weight: NA

Section 10: Stability and Reactivity

Stability: Stable under normal conditions. Keep lid tight during storage.
Conditions to Avoid: No further relevant information available.
Materials to Avoid (Incompatibility): No further relevant information available.
No decomposition if used according to specifications. (< 100 °C)
Hazardous Decomposition Products: No dangerous decomposition products known.
Possibility of hazardous reactions: No dangerous reactions known.
Hazardous Polymerization: Will not occur

Section 11: Toxicological Information

Results of component toxicity test performed:

Acute toxicity:

LD/LC50 values that are relevant for classification:

108-88-3 Toluene: Dermal LD50 12124 mg/kg (rbt), Inhalative LC50/4 h 28.1 mg/l (rat).

141-78-6 Ethyl acetate: Oral LD50 11300 mg/kg (rat) 5620 mg/kg (rbt), Dermal LD50 > 18000 mg/kg (rabbit), Inhalative LC50/1h 200 mg/l (rat), LC50/4 h 1600 mg/l (rat).

5989-27-5 (R)-p-mentha-1,8-diene: Oral LD50 4400 mg/kg (rat), Dermal LD50 > 5000 mg/kg (rabbit).

64-17-5 Ethanol denatured: Oral LD50 5560 mg/kg (guinea pig), 3450 mg/kg (mouse), 6300 mg/kg (rabbit), 7060 mg/kg (rat), Inhalative LC50/4 h 20000 mg/l (rat).

67-63-0 Propan-2-ol: Oral LD50 5045 mg/kg (rat), Dermal LD50 12800 mg/kg (rbt), Inhalative LC50/4 h 30 mg/l (rat).

Primary irritant effect: On the skin: Irritant to skin and mucous membranes.

On the eye: No irritating effect.

Sensitization: Sensitization possible through skin contact.

Additional toxicological information: See Section 3.

Human experience: NIF

This product **does not** contain any compounds listed by NTP or IARC or regulated by OSHA as a carcinogen.

Section 12: Ecological Information

Ecological Information:

Aquatic toxicity:

7440-22-4 Silver powder: LC50/96h 0.0102 mg/l (fish) (*anguilla anguilla*) (valid for particle size <1mm).

108-88-3 Toluene: EC50/30min 20 mg/l (bak), EC50/48h 6 mg/l (daphnia), IC50/72h 12 mg/l (algae)

LC50/96h 5.8 mg/l (fish).

141-78-6 Ethyl acetate: EC10/18h 2900 mg/l (bak), EC50/48h 717 mg/l (daphnia), IC50/48h 3300 mg/l (algae), LC50/48h 333 mg/l (fish), LC50/96h 230 mg/l (fish).

5989-27-5 (R)-p-mentha-1,8-diene: LC50 34 mg/l (fish).

64-17-5 Ethanol denatured: LC50/24h > 100 mg/l (daphnia), LC50/48h 8140 mg/l (fish).

67-63-0 Propan-2-ol: EC50/72h 1000 mg/l (algae), LC50/96h 9640 mg/l (fish).

Persistence and degradability No further relevant information available.

Behavior in environmental systems: No further relevant information available.

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available

Chemical Fate Information: ND

Ecotoxicological effects: Remark: Very toxic for fish

Additional ecological information:

General notes: Water hazard class 2 (in accordance with VwVwS from 15.05.1999):

Hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

Other adverse effects No further relevant information available.

Section 13 Disposal Considerations

RCRA 40 CFR 261 Classification: · Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Consider for recycling silver.

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

Section 14: Transportation Information

US DOT Information: Proper shipping name: Flammable liquids, n.o.s. (Toluene, Ethyl acetate)

Hazard Class: 3

Packaging group: II

UN Number: UN1993

IATA: Proper shipping name: Flammable liquids, n.o.s. (Toluene, Ethyl acetate)

Hazard Class: 3

Packing group: II

UN Number: UN1993

Marine Pollutant: Yes, listed as Dipentene or ((R)-p-mentha-1,8-diene).

Product contains environmentally hazardous substances: Silver powder, (R)-p-mentha-1,8-diene.

Canadian TDG: Flammable liquids, n.o.s. (Toluene, Ethyl acetate)

Section 15: Regulatory Information

United States Federal Regulations

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

SARA: Section 355 (extremely hazardous substances):

None of the ingredient is listed.

SARA Title III: Section 313 (Specific toxic chemical listings): 7440-22-4 Silver powder, 108-88-3 toluene,

67-63-0 propan-2-ol

RCRA: ND

TSCA: All ingredients are listed.

CERCLA: The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 micrometers (0.004 inches). RQ for Silver: 1000lbs (454Kg)

State Regulations

California Proposition 65: Chemicals known to cause cancer: None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females: 108-88-3 toluene

Chemicals known to cause reproductive toxicity for males: None of the ingredients is listed.

Chemicals known to cause developmental toxicity: 108-88-3 toluene; 64-17-5 ethanol denatured

Carcinogenicity categories:

EPA (Environmental Protection Agency):

7440-22-4 Silver powder: D

108-88-3 toluene: II

TLV (Threshold Limit Value established by ACGIH):

108-88-3 toluene: A4

64-17-5 ethanol denatured: A3

67-63-0 propan-2-ol: A4

76-22-2 bornan-2-one: A4

MAK (German Maximum Workplace Concentration): 64-17-5 ethanol denatured: 5

NIOSH-Ca (National Institute for Occupational Safety and Health): None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration): None of the ingredients is listed.

International Regulations

Canada WHMIS:

Europe EINECS Numbers:

Section 16: Other Information

Label Information: Flammable, Irritation, Health Hazard

European Risk and Safety Phrases: ND

European symbols needed: ND

Canadian WHMIS Symbols: ND

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.