

SAFETY DATA SHEET FE3124

Issue Date: 2023-05-05

SDS Version: 2.0



Section 1: identification of the substance/preparation and of the company/undertaking

Product identifier: FE3124

Other means of identification: Conductive ink, Conductive Paste, Silver Ink, Silver Conductor, Silver Paste

Recommended use of the chemical and restrictions on use: None identified

Supplier:

Voltera Inc.
180 Northfield Dr W, Suite 2
Waterloo, ON N2L0C7, Canada
E-mail: support@voltera.io

Emergency Phone Number:

CANUTEC 1+ 613-996-6666 or 1-888-CAN-UTEC (226-8832)

International Emergency Number, CANUTEC

This telephone number is available 24 hours per day, 7 days per week.

Section 2: Hazards Identification

Classification of the substance or mixture:

Warning: Serious Eye Damage/Eye Irritation
 Skin sensitization
 Specific target organ toxicity – repeated exposure – Inhalation
 Aspiration hazard
 Toxic to aquatic life



Symbols:

Signal word: Warning

Hazard Statements: H304 May be fatal if swallowed and enters airways.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H373 Causes damage to organs (Central nervous system) through prolonged or Repeated exposure if inhaled.
H401 Toxic to aquatic life.

Precautionary Statements: P264 Wash hands thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P311 IF SWALLOWED: Call a POISON CENTER/doctor.
P302+P361+P353: IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

P333+P313: If skin irritation or a rash occurs: Get medical advice/attention.

P337+P313: If eye irritation persists: Get medical advice/attention.

Describe any hazards not otherwise classified: None known.

Section 3: Composition/Information on ingredients

Chemical Name	CAS Number	Concentration, %
Silver	7440-22-4	60-75
Diethylene glycol monoethyl ether acetate	112-15-2	10-20
Mineral Spirits	8052-41-3	1-10

Remaining components are non-hazardous or present in amounts below reportable limits. Exact percentage values for components are proprietary in accordance with 29 CFR 1910.1200(i).

Section 4: First-aid measures**Description of First aid measures**

Inhalation: Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Skin contact: Remove contaminated clothing. Wash off with soap and plenty of water. If symptoms persist, call a physician.

Eye contact: Rinse with plenty of water. If eye irritation persists, consult a specialist.

Ingestion: Seek medical advice.

Most important symptoms/effects, acute and delayed: May irritate and cause redness and pain.

Indication of immediate medical attention and special treatment needed: None known. Treat symptomatically.

Section 5: Fire-fighting measures

Suitable extinguishing media: Water spray. Dry chemical. Carbon Dioxide. Alcohol foam.

Unsuitable extinguishing media: None known.

Specific hazards arising from the mixture: Forms peroxides of unknown stability.

Unusual Fire and Explosion Hazards: Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases and/or fumes may be generated during combustion or decomposition.

Specific protective equipment and precautions for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

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**Section 6: Accidental release measures**

Personal precautions, protective equipment, and emergency procedures: Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up: Eliminate all ignition sources. Evacuate personnel to safe areas. Ventilate the area. Soak up with inert absorbent material, then place in a container for chemical waste.

Section 7: Handling and storage

Precautions for safe handling: Vapors can be evolved when material is heated during processing operations.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry, cool and well-ventilated place. Store away from heat and light.

Section 8: Exposure controls/personal protection

Control Parameters: Exposure limits are listed below, when known.

Components with workplace control parameters

Component	CAS No.	Value	Control Parameter	Basis
Silver (metallic)	7440-22-4	TWA	0.1 mg/m ³	ACGIH Threshold Limit Values (TLV)
		TWA	0.01 mg/m ³	OSHA Permissible Exposure Limit (PEL)
Mineral Spirits	8052-41-3	TWA	350 mg/m ³	NIOSH REL
		C	1800 mg/m ³	NIOSH REL C[15 minutes]
		TWA	500 ppm; 2,900 mg/m ³	Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
		TWA	100 ppm	ACGIH TLV

Appropriate engineering controls: Good general ventilation should be used.

Individual protection measures, such as personal protective equipment:

General Information: Eye wash station and safety shower.

Individual protection measures:

Eye/face protection: Eye protection should be used.

Skin protection: Chemical-resistant gloves should be worn whenever this material is handled.

Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator should be worn.

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**Section 9: Physical and chemical properties****Appearance:** Silver paste**Odor:** Mild**Odor Threshold:** No data available**pH:** No data available**Melting point/freezing point:** No data available**Initial boiling point and boiling range:** No data available**Flash point:** >150 °F (>65.5 °C) EPA Method 1010**Evaporation rate:** No data available**Flammability (solid, gas):** No data available**Upper/lower flammability or explosive limits:** No data available**Vapor pressure:** No data available**Vapor density:** No data available**Relative density:** No data available**Solubility:** No data available**Partition coefficient: n-octanol/water:** No data available**Auto-ignition temperature:** No data available**Decomposition temperature:** No data available**Viscosity:** 5,000-10,000 cP @25 °C**Other Information:** Amounts listed are typical and do not represent a specification.**Section 10: Stability and reactivity****Reactivity:** None known.**Chemical stability:** Stable.**Possibility of hazardous reactions:** Forms peroxides of unknown stability.**Conditions to avoid:** None at ambient temperatures.**Incompatible materials:** Avoid contact with the following: Strong oxidizing agents. Strong acids and strong bases.**Hazardous decomposition products:** Carbon Dioxide. Carbon Monoxide.**Section 11: Toxicological information****Information on the likely routes of exposure:** Product test data is not available. Toxicological information appears in this section when the constituent data is available.**Numerical measures of toxicity:**

<u>Chemical Name</u>	<u>Oral LD50</u>	<u>Species</u>	<u>Dermal LD50</u>	<u>Species</u>
Diethylene glycol Monoethyl ether acetate	11,000 mg/kg	Rat	15,000 mg/kg	Rabbit
Mineral Spirits	>5,000 mg/kg	Rat	> 2,000 mg/kg	Rabbit

Skin Corrosion/Irritation

Diethylene glycol monoethyl ether acetate: Human, 48 hr: Slight. Rabbit, 48 hr: Slight.

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Mineral Spirits: Prolonged contact may cause slight skin irritation with local redness. Repeated contact may cause skin irritation with local redness. May cause drying and flaking of the skin.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Mineral Spirits: In humans, effects have been reported on the following organs: Bone Marrow, Liver.

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial, where available): There is no data available for this product.

Ecotoxicological information appears in this section when such data is available for the components of the mixture.

Acute hazards to the aquatic environment:

Fish

Diethylene glycol monoethyl ether acetate: LC50 (Fathead Minnow, 96 h): >10,000 mg/l

Mineral Spirits:

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

Acute toxicity to aquatic invertebrates

LC50, crustacean *Chaetogammarus marinus*, 96 Hour, 3.5 mg/l

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, 1.2 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), 21 d, 0.1 mg/l

Biodegradability: Material is expected to be readily biodegradable.

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5)

Silver:

Silver is very toxic for aquatic organisms.

Section 13: Disposal Considerations

Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14: Transport Information

(a) **UN Number** UN3077

(b) **UN proper shipping name** Environmentally Hazardous Substance, Solid, N.O.S (Contains Silver)

(c) **Transport hazard class** 9

(d) **Packing group** III

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Section 15: Regulatory Information

Safety, health and environmental regulations/legislation specific for the product:

U.S. Federal and State regulations/legislation:

This SDS has been prepared in accordance with the hazard criteria of the OSHA Hazard Communication Standard, 29 CFR 1910.1200

U.S Superfund Amendments and Reauthorization (SARA) – SARA Section 313.

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 and 40 CFR 372:

Silver

U.S TSCA Inventory (TSCA).

All components of this product are in compliance with the inventory listing requirements of the U.S toxic Substances Control Act (TSCA) Chemical Substance Inventory.

California Proposition 65:

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

Ethylbenzene (<0.1%)

Naphthalene (<0.1%)

California Proposition 65:

Warning: The following ingredient present in the product is known to the state of California to cause birth defects or other reproductive harm:

Toluene (<0.1%)

Section 16: Other Information

Issue Date: March 15, 2019

Nomenclature:

ACGIH = American Conference of Governmental Industrial Hygienists

BCF = Bioconcentration Factor

C = Ceiling Value

EC50 = Effective Concentration

LC = Lethal concentration

LD = Lethal dose

ND = No Data

NIOSH = The National Institute for Occupational Safety and Health

NOEC = No Observed Effect Concentration

Pow = Partition Coefficient

REL = Recommended Exposure Limit

STEL = Short Term Exposure Limit

TWA = Time weighted average

Disclaimer Notice

This product is a complex mixture of liquids and solids. This SDS was prepared based upon the SDS of the raw materials used in the mixture.

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