

SAFETY DATA SHEET

Conductive silver liquid, SEM adhesive

1. IDENTIFICATION

Product Identifiers

Product Name: Conductive silver liquid, SEM adhesive
Other Names: -
Product No.(s): I004; I0041.
CAS No.: Mixture see Section 3 below for components.

Recommended use of the chemical and restriction on use:

Fixative used in laboratory conditions.

Company Details:

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Flammable Liquids Category 2
 Eye Irritation Category 2A
 Skin Irritation Category 2
 Specific Target Organ Toxicity – repeated exposure – Category 3
 Chronic Aquatic Toxicity Category 2

Label Elements:



Flammable
 Health Hazards

Signal Word: Danger

Hazard Statement(s):

H225: Highly flammable liquid and vapour
 H315: Causes skin irritation
 H319: Causes serious eye irritation
 H336: May cause drowsiness or dizziness
 H411: Toxic to aquatic life with long lasting effects

Precautionary Statement(s):

P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Manufacturer/supplier or competent authority to specify applicable ignition source(s).
 P233: Keep container tightly closed.
 P240: Ground/bond container and receiving equipment
 P241: Use explosion-proof electrical/ventilating/lighting/.../equipment.
 P242: Use only non-sparking tools.
 P243: Take precautionary measures against static discharge.
 P264: Wash with soap and water thoroughly after handling.
 P280: Wear face protection. Specify type of equipment.
 P302+P352: IF ON SKIN: Wash with plenty of soap and water.
 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 so. Continue rinsing.
 P332+P313: If skin irritation occurs: Get medical advice/attention.
 P337+P313: If eye irritation persists: Get medical advice/attention.

P362: Take off contaminated clothing and wash before reuse.

P370+P378: In case of fire: Use dry chemical, CO₂, water spray (fog) or foam for extinction.

P403+P235: Store in a well-ventilated place. Keep cool.

P501: Dispose of contents and container in accordance with local, state and federal regulations.

Primary route(s) of entry:

Inhalation, ingestion, skin and/or eye contact.

Human Health

Inhalation: Inhalation of powder can cause mild, non-specific irritation of respiratory passages.

Ingestion: Non-specific symptoms may occur due to presence of particulate material.

Eyes: Particles are extremely irritating to eyes.

Skin: In general, there is no effect of skin contact. Prolonged contact may produce skin discolouration.

Environment: Hazardous to aquatic life.

Other Hazards: Carbon oxide can be produced from the decomposition.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	Cas No.	Content	Classification
Silver, metal	744-22-4	~56%	-
Protec Super Clear	Mixture below	~44%	Flammable Liquids Category 2 Eye Irritation Category 2A Skin Irritation Category 2 Specific Target Organ Toxicity – repeated exposure – Category 3 Chronic Aquatic Toxicity Category 2
Toluene	108-88-3	~13.2-26.4%	See above in Protec Super Clear
Butanone	78-93-3	~4.4-13.2%	See above in Protec Super Clear
butan-1-ol	71-36-3	~0-4.4%	See above in Protec Super Clear
2-methoxy-1-methylethyl acetate	108-65-6	~0-4.4%	See above in Protec Super Clear
ethyl 3-ethoxypropionate	763-69-9	~0-4.4%	See above in Protec Super Clear
BBP	85-68-7	~0-4.4%	See above in Protec Super Clear
xylene	1330-20-7	~0-4.4%	See above in Protec Super Clear
bis(1,2,3,6,6-pentamethyl-4-piperidyl) sebacate	104810-48-2	~0-4.4%	See above in Protec Super Clear
Poly(oxy-1,2-ethanediyl),a-[3-[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropyl]-w-hydroxy-			
Poly(oxy-1,2-ethanediyl),a-[3-[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropyl]-w-[3-[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]-	104810-47-1	~0-4.4%	See above in Protec Super Clear
Other ingredients, determined not to be hazardous according to Safe Work Australia criteria, and not dangerous according to the Australian	-	~0-44%	See above in Protec Super Clear

Dangerous Goods Code,
make up the product
concentration.

4. FIRST AID MEASURES

Ingestion

If patient is conscious, rinse particles from mouth with water; do not swallow. DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Obtain immediate medical attention.

Inhalation:

Treat as dust inhalation. Remove patient to fresh air. Obtain medical treatment for prolonged respiratory irritation or difficulty in breathing.

Skin Contact:

Wash affected area with soap and water to remove particles that may cling to skin. Remove contaminated clothing and shoes.

Eye Contact:

Flush with water, including under lids, with gentle stream of water for fifteen minutes. Obtain immediate medical attention.

Other Information:

Doctor to treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable extinguishing equipment

ALL FIRES:

Use media appropriate for the surrounding fire. Recommended to use dry chemical, CO₂, water spray (fog) or foam. DO NOT USE water jet.

HAZCHEM: 3(Y)E

Special protective equipment and precautions for fire fighters:

Wear self-contained breathing apparatus and full protective gear. Do not allow the material to enter waterways – toxic to the aquatic environment.

Other Information:

Grinding finely divided powder, particularly with strong oxidizers, may result in explosion or fire when mixed with air in the proper proportions. Toxic metal fumes may be released in a fire situation. May cause carbon oxides when decomposing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Evacuate the area of non-essential personnel; wear protective equipment while cleaning the spill (see Section 8). Stop leak if without risk.

Environmental precautions:

Do not let the product enter drains/waterways.

Methods and materials for containment and clean up:

Contain spilled material and collect for disposal. Use an inert material and place into an appropriate waste container.

7. HANDLING AND STORAGE

Precautions for safe handling:

Keep containers closed except when transferring contents. Do not use near sources of ignition or open flames. Wear protective equipment while handling (see Section 8). Wash hands with soap and water after handling and before eating or smoking.

Conditions for safe storage:

Keep containers closed except when transferring contents. Do not store near oxidizing agents, nitric acid, acetylene, or hydrogen peroxide, other incompatible materials, food and drink. Store segregated in an approved area, away from direct sunlight, in a dry cool and well-ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards

Material	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3
Silver, metal	-	0.1	-	-
Toluene	50	191	150	574
Butanone	150	445	300	890
2-methoxy-1-methylethyl acetate	50	274	100	548
Ethyl 3-ethoxypropionate	100	610	-	-
BBP	-	5	-	-
Xylene	80	350	150	655

Engineering controls:

Local mechanical exhaust. Wash hands with soap and water after handling and before eating or smoking. Maintain eyewash station and safety shower near the working area.

Personal protective equipment:

Eye and face protection:

Chemical splash goggles or safety glasses with side shields.

Skin protection:

Rubber gloves (butyl rubber or nitrile rubber recommended). Aprons or lab coats are recommended.

Body Protection:

No specific requirements – it is recommended to wear appropriate clothing to prevent contact with skin.

Respiratory protection:

Wear a dust mask when handling this material. If exposed to concentrations above the exposure limit, then use an appropriate certified respirator. Properly fitted, air-purifying or air-fed respirator complying with national standards is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance:	Grey, lustrous liquid.
Odour:	Not available.
pH:	{pH of product}
Vapour pressure:	Negligible. {mmHg at °C}
Vapour density:	Not available.
Boiling point:	1951°C / >37.78°C.
Melting point:	960°C.
Solubility:	Insoluble.
Specific gravity or density:	10.5 at 25°C.
Flash Point:	Closed cup: -6°C.
Flammable (explosive) limits:	Not available.
Ignition temperature:	Not available.

10. STABILITY AND REACTIVITY

Reactivity:

Chemical stability:

Stable under normal conditions of use.

Possibility of hazardous reactions:

Grinding finely divided powder, particularly with strong oxidizers, may result in explosion or fire when mixed with air in the proper proportions. Toxic metal fumes may be released in a fire situation.

Conditions to avoid:

Contact with incompatible materials. Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Avoid release to the environment.

Incompatible materials:

Strong acids, bases, and oxidizing agents, ammonia, acetylene and hydrogen peroxide.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Contains material which causes damage to the following organs: brain.

Contains material which may cause damage to the following organs: blood, kidneys, lungs, the nervous system, the reproductive system, liver, mucous membranes, heart, peripheral nervous system, gastrointestinal tract, cardiovascular system, ears, eyes, lens or cornea, nose/sinuses.

Acute effects:

Eye contact: Particles are extremely irritating to eyes. Irritating to eyes.

Skin contact: In general, there is no effect of skin contact. Prolonged contact may produce skin discolouration. Irritating to skin.

Ingestion: Non-specific symptoms may occur due to presence of particulate material. Irritating to mouth, throat and stomach.

Inhalation: Inhalation of powder can cause mild, non-specific irritation of respiratory passages. Vapours may cause drowsiness and dizziness.

Chronic effects:

Prolonged exposure to high concentrations can lead to argyria, a generalized grayish pigmentation of the skin and mucous membranes. Such symptoms usually occur after at least two years of exposure. There are no systemic effects, other symptoms, or physical disabilities known to be associated with this condition.

Inhalation of vapour/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Inhalation of high concentrations of vapour may affect the central nervous system.

Toxicity and irritation:

TDL_o: 330 mg/kg (rat, silver, multiple methods of administration).

Toluene – Reproductive Category 3. (Developmental toxicity)

BBP – Reproductive Category 2. (Developmental toxicity and impairs fertility).

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Silver is toxic to aquatic life.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Water polluting material. May be harmful to the environment if released in large quantities.

Persistence and degradability:

Ingredient name:	Aquatic Half-Life	Photolysis	Biodegradability
Xylene	-	-	Readily

Ingredient name:	LogP _{ow}	BCF	Potential
Toluene	2.73	8.317637711	Low
Butanone	0.29	-	Low
Butan-1-ol	0.88	-	Low
2-methoxy-1-methylethyl acetate	0.56	-	Low
BBP	4.73	16.218100973	Low
Xylene	3.16	7.4 to 18.5	Low

Other adverse effects:

No known side effects or critical hazards. Do not allow to enter drains or watercourses.

13. DISPOSAL CONSIDERATIONS

General information:

Dispose of all chemical wastes at an appropriate waste disposal facility. Follow all local, state, and federal regulations for disposal of waste chemicals.

14. TRANSPORT INFORMATION

ADG label required:

HAZCHEM: 3(Y)E

UN number:	UN1263
Proper shipping name:	Paint
Transport hazard class:	3
Packing group:	PG II
Environmental hazard:	Yes
Special precautions for users:	{ Any further packing instructions }
Additional information:	{ Any additional information about the material in transport }

15. REGULATORY INFORMATION

Poisons Schedule Number: Schedule 5

16. OTHER INFORMATION

SDS preparation date: 12 April 2013

Comments:

List of Publications referenced when creating this SDS;

- Dangerous Goods - Initial Emergency Response Guide (SAA/SNZ HB76:1997).
- IATA Dangerous Goods Regulations.
- Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)].
- Australia Standard for the Uniform Scheduling of Drugs and Poisons [SUSPD] (Australian Government Department of Health and Ageing).

This Safety Data Sheet (SDS) has been prepared in compliance with the Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice 2011. It is the user's responsibility to determine the suitability of this information for adoption of necessary safety precautions. The information published in this SDS has been compiled from the publications listed in Section 16: to the best of our ability and knowledge these publications are considered accurate. We reserve the right to revise Safety Data Sheets as new information becomes available. Copies may be made for non-profit use. ... End of SDS ...