

Electroless Copper Plating Solution

Safety Data Sheet

Section 1: Identification

1.1 Identification

Product Name : Electroless Copper Plating Solution
Product Code : EM-EL1-80RT-01

Use of the substance/mixture : Electroless Copper Plating

1.3 Details of the supplier of the safety data sheet

Nano3D Systems LLC
1110 NE Circle Blvd.,
ATAMI/Bldg. 11
Corvallis, OR 97330

1.4 Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

Section 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification (GHS-US)

Acute toxicity, Oral (Category 4)	H302
Skin irritation (Category 2)	H315
Eye irritation (Category 2A)	H319
Acute aquatic toxicity (Category 1)	H400
Chronic aquatic toxicity (Category 1)	H410

2.2 Label elements

GHS-US labeling

Hazard pictogram (GHS-US)



Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H302 – Harmful if swallowed
: H315 – Causes skin irritation
: H319 – Causes serious eye irritation
: H400 – Acute aquatic toxicity
: H410 – Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) : P264 – Wash hands thoroughly after handling
: P270 – Do not eat, drink or smoke when using this product
: P273 – Avoid release to the environment
: P280 – Wear protective gloves/protective clothing/ eye protection/face protection

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: P301+P312+P330 – If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth
: P302+P352 – If on skin: Wash with plenty of water
: P304+P340 – If inhaled: Remove person to fresh air and keep comfortable for breathing
: P305+P351+P338+P310 – If in eye: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician
: 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
: P391 – Collect spillage.
: P501 – Dispose of contents/ container to an approved waste disposal plant.

2.3 Other Hazards

No additional information available

Section 3: Composition/information on ingredients

3.1 Substance

Not applicable

3.2 Mixture

Name	Product Identifier	%	Classification (GHS-US)
Copper(II) Sulfate Pentahydrate	(CAS-No.) 7758-99-8	Trade Secret	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Aquatic Acute 1; Aquatic Chronic 1; H302, H315, H319, H410
L(+)-Tartaric acid potassium sodium salt	(CAS-No.) 6381-59-5	Trade Secret	Not a hazards substance or mixture

Section 4: First Aid Measures

4.1 Description of first aid measures

General

: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

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Inhalation	: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Skin contact	: Wash off with soap and plenty of water. Consult a physician.
Eye contact	: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician

4.2 Most important symptoms and effects, both acute and delayed

Inhalation	: May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin contact	: May cause an allergic reaction
Eye contact	: Causes serious eye damage
Ingestion	: Harmful if swallowed

4.3 Indication of any immediate medical attention and special treatment needed

No further information available

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	: None

5.2 Special hazards arising from the substance or mixture

Fire hazard	: No information available
Explosion hazard	: No information available

5.3 Advice for firefighters

Protection during firefighting	: Wear self-contained breathing apparatus for firefighting if necessary.
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Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- 6.1.1 For non-emergency personnel : Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
- 6.1.2 For emergency personnel : No additional information available

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

Section 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid formation of aerosols.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed in a dry and well-ventilated place.

Air sensitive. hygroscopic Handle and store under inert gas.

Storage class (TRGS 510): Non Combustible Solids

Section 8: Exposure controls/personal protection

8.1 Control parameters

Copper(II) Sulfate Pentahydrate (CAS-No.) 7758-99-8

TWA 1.000000 mg/m³ USA. NIOSH Recommended Exposure Limits

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8.2 Exposure controls

Appropriate engineering controls	: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Hand protection	: Handle with gloves. Gloves must be inspected prior to use. Use proper
Eye protection	: Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin and body protection	: Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Blue
Odor	: No information available
Odor threshold	: No information available
pH	: 9
Melting point	: No information available
Freezing point	: No information available
Boiling point	: No information available
Flash point	: No information available
Relative evaporation rate (butyl acetate = 1)	
Flammability (solid, gas)	: No information available
Explosion limits	: No information available
Explosive properties	: No information available
Vapor pressure	: No information available
Relative density	: No information available
Relative vapor density at 20 °	: No information available
Solubility	: Miscible
Log Pow	: No information available

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Auto-ignition temperature	: No information available
Viscosity	: No information available
Viscosity, kinematic	: No information available
Viscosity, dynamic	: No information available

9.2 Other information

No further information available

Section 10: Stability and reactivity

10.1 Reactivity

No information available

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No information available

10.4 Conditions to avoid

Air sensitive. hygroscopic

10.5 Incompatible materials

Strong oxidizing agents, Bases, reducing agent Powdered metals, Anhydrous copper(II) sulfate, reacts violently with: hydroxylamine, Magnesium,

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Sulphur oxides, Copper oxides
Other decomposition products - No data available

Section 11: Toxicological information

11.1 Control parameters

Acute toxicity	: No information available
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Compound

Skin corrosion/irritation	: Causes skin corrosion
Serious eye damage/irritation	: Risk of serious damage to eyes
Respiratory or skin sensitization	: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

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Germ cell mutagenicity	: No information available
Carcinogenicity	: 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 or OSHA.
Reproductive toxicity	: Possible risk of congenital malformation in the fetus.
Specific target organ toxicity (single exposure)	: No information available
Specific target organ toxicity (repeated exposure)	: No information available
Aspiration hazard	: No information available

Additional information

Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has led to hemolytic anemia and accelerates arteriosclerosis., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12: Ecological information

12.1 Toxicity

Copper(II) Sulfate Pentahydrate (CAS-No.) 7758-99-8

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.024 mg/l - 48 h
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12.2 Persistence and degradability

No information available

12.3 Bioaccumulative potential

No information available

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12.4 Mobility in soil

No information available

12.4 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life. May be harmful to aquatic organisms due to the shift of the pH. Avoid release to the environment.

Section 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

Section 14: Transportation information

14.1 Transportation information

Department of Transportation (DOT)

UN number: 3082 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substances, liquid, n.o.s. (Copper(II) sulfate solution)

Reportable Quantity (RQ): 10 lbs

Marine pollutant: yes

Poison Inhalation Hazard: No

Section 15: Regulatory information

15.1 US Federal regulations

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

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Copper sulfate pentahydrate	CAS-No. 7758-99-8	Revision Date 1993-04-24
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SARA 311/312 Hazard

No SARA Hazards

Massachusetts Right to Know Components

Copper sulfate pentahydrate	CAS-No. 7758-99-8	Revision Date 1993-04-24
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Pensilvania Right to Know Components

Water	CAS-No. 7732-1805	Revision Date
Copper sulfate pentahydrate	7758-99-8	1993-04-24
Potassium sodium tartrate tetrahydrate	6381-59-5	

New Jersey Right to Know Components

Water	CAS-No. 7732-1805	Revision Date
Copper sulfate pentahydrate	7758-99-8	1993-04-24
Potassium sodium tartrate tetrahydrate	6381-59-5	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic	Acute Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
Skin Irrit.	Skin irritation
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

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HMIS Rating

Health	2
Fire	0
Reactivity	1

NFPA Rating

Health	2
Fire	0
Reactivity	0

SDS Preparation date: May 29, 2018 **Supersedes previous version:** New SDS

This SDS contains revisions in the following sections(s): Not applicable. New SDS.

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End of Safety Data Sheet