Safety Data Sheet 115-3831/115-3834

CircuitMedic, 22 Parkridge Road, Haverhill, MA 01835 USA
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Revision Date: Nov 2, 2021

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Plating Solution, Nickel
Product Numbers:	1 oz: 115-3831, 4 oz: 115-3834
Distributor:	CircuitMedic 22 Parkridge Road, Haverhill, MA 01835 USA PHONE: 978-373-1600, FAX: 978-372-5700
Emergency Response:	For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 CCN4877 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

Section 2. HAZARD IDENTIFICATION

Classification of the substance or mixture	
Emergency Overview:	
Potential Health Effects:	
Physical hazards:	Not Classified.
Health hazards:	Skin Irrit. 2 - H315 Eye Dam. 1 - H318 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Muta. 2 - H341 Carc. 1A - H350 Repr. 1B - H360D STOT RE 1 - H372.
Environmental hazards:	Aquatic Chronic 2 - H411.
Signal word:	Danger.
Hazard statements:	H315 Causes skin irritation. H318 Causes serious eye damage. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H317 May cause an allergic skin reaction. H341 Suspected of causing genetic defects. H350 May cause cancer. H360D May damage the unborn child. H372 Causes damage to organs through prolonged or repeated exposure. H411 Toxic to aquatic life with long lasting effects.
Precautionary statements:	P260 Do not breathe vapor/ spray. P264 Wash contaminated skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P284 [In case of inadequate ventilation] wear respiratory protection. P301+P310 If swallowed: Immediately call a poison center/ doctor. 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 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P501 Dispose of contents/ container in accordance with national regulations.
Contains:	Nickel Sulfate, Ammonia ...%
Other hazards:	This product does not contain any substances classified as PBT or vPvB.

Section 3. COMPOSITION, INFORMATION OR INGREDIENTS

Chemical Name	C.A.S. Number	Weight %	Classification
Ammonium Formate	540-69-2	10-15%	Skin Irrit. 2 - H315, Eye Irrit. 2 - H319, STOT SE 3 - H335
Nickel Sulphate	7786-81-4	5-10%	Acute Tox. 4 - H302, Acute Tox. 4 - H332, Skin Irrit. 2 - H315, Resp. Sens. 1 - H334, Skin Sens. 1 - H317, Muta. 2 - H341, Carc. 1A - H350i, Repr. 1B - H360D, STOT RE 1 - H372, Aquatic Acute 1 - H400, Aquatic Chronic 1 - H410
Ammonium Citrate	3458-72-8	1-5%	Skin Irrit. 2 - H315, Eye Irrit. 2A - H319, STOT SE 3 - H335
Ammonia ...%	1336-21-6	1-5%	Skin Corr. 1B - H314, Eye Dam. 1 - H318, STOT SE 3 - H335, Aquatic Acute 1 - H400

The full text for all hazard statements is displayed in Section 16.

Section 4. FIRST AID MEASURES

Description of first aid measures.	
Inhalation:	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Never give anything by mouth to an unconscious person. Get medical attention.
Ingestion:	Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact:	Remove contaminated clothing immediately and wash skin with soap and water. Continue to rinse for at least 15 minutes and get medical attention.
Eye Contact:	Remove affected person from source of contamination. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention.
Most important symptoms and effects, both acute and delayed.	
Inhalation:	Coughing, chest tightness, feeling of chest pressure.
Ingestion:	May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.
Skin Contact:	May cause serious chemical burns to the skin.
Eye Contact:	Causes severe burns. May cause serious eye damage.
Indication of immediate medical attention and special treatment needed.	
Notes for the doctor.	No specific recommendations.

Section 5. FIRE-FIGHTING MEASURES

Extinguishing media.	
Suitable extinguishing media:	The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.
Special hazards arising from the substance or mixture.	
Specific hazards:	Toxic and corrosive gases or vapors.
Advice for firefighters.	
Protective actions during firefighting:	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.
Special protective equipment for firefighters:	Use protective equipment appropriate for surrounding materials.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures.	
Personal precaution:	Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapors. Provide adequate general and local exhaust ventilation.
Environmental precautions.	
Environmental precautions:	Do not discharge into drains or watercourses or onto the ground. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).
Methods and material for containment and cleaning up.	
Methods for cleaning up:	Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Flush contaminated area with plenty of water. Avoid the spillage or runoff entering drains, sewers or watercourses. Collect and dispose of spillage as indicated in Section 13. Wash thoroughly after dealing with a spillage.
Reference to other sections:	Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

Section 7. HANDLING AND STORAGE

Precautions for safe handling.	
Usage precautions:	Avoid spilling. Avoid contact with skin and eyes. Avoid inhalation of vapors and spray/mists. Provide adequate general and local exhaust ventilation.
Conditions for safe storage, including any incompatibilities.	
Storage precautions:	Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from freezing and direct sunlight.
Storage class:	Toxic storage. Corrosive storage.
Specific end uses(s).	
Specific end use(s):	The identified uses for this product are detailed in Section 1.

Section 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limits	
Nickel Sulfate:	Long-term exposure limit (8-hour TWA): ACGIH 0.1 mg/m³ as Ni A4 ACGIH = American Conference of Governmental Industrial Hygienists. A4 = Not Classifiable as a Human Carcinogen.
Exposure controls	
Appropriate engineering controls:	As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapor or mist.
Eye/face protection:	Tight-fitting safety glasses.
Hand protection:	It is recommended that chemical-resistant, impervious gloves are worn. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. It is recommended that gloves are made of the following material: Nitrile rubber.
Other skin and body protection:	Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.
Hygiene measures:	Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection:	If ventilation is inadequate, suitable respiratory protection must be worn. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit..

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties.	
Appearance:	Liquid.
Color:	Blue-green.
Odor:	No characteristic odor.
pH:	pH (concentrated solution): 7.2-7.9.
Relative density:	1.122-1.126 @ 20°C
Other information:	Not available.

Section 10. STABILITY AND REACTIVITY

Reactivity:	There are no known reactivity hazards associated with this product.
Stability:	Stable at normal ambient temperatures. Avoid the following conditions: Mixing with any other material.
Possibility of hazardous reactions:	Not determined.
Conditions to avoid:	Avoid excessive heat for prolonged periods of time.
Materials to avoid:	Strong acids.
Hazardous decomposition products:	None at ambient temperatures.

Section 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects	
Acute toxicity - oral ATE oral (mg/kg):	6,239.65517241
Acute toxicity - inhalation ATE inhalation (dusts/mists mg/l):	42.75862069
Inhalation:	Vapor from this product may be hazardous by inhalation.
Ingestion:	Toxic if swallowed. Causes severe burns. May cause chemical burns in mouth, esophagus and stomach.
Skin Contact:	May cause serious chemical burns to the skin. May cause sensitization or allergic reactions in sensitive individuals.
Eye contact:	Causes serious eye damage. Immediate first aid is imperative.
Acute and chronic health hazards:	Causes severe burns. May cause cancer.
Route of exposure:	Ingestion Inhalation Skin and/or eye contact.

Toxicological information on ingredients.	
Ammonium Formate:	Acute toxicity - oral Acute toxicity oral (LD_{50}mg/kg): 2,250.0 Species: Mouse ATE oral (mg/kg): 2,250.0
Nickel Sulfate:	Acute toxicity - oral Acute toxicity oral (LD_{50}mg/kg): 361.9 Species: Rat ATE oral (mg/kg): 500.0 Acute toxicity - inhalation Acute toxicity inhalation (LC_{50} dust/mist mg/l): 2.48 Species: Rat ATE inhalation (dusts/mists mg/l): 2.48
Ammonia ...%	Acute toxicity - oral Acute toxicity oral (LD_{50}mg/kg): 350.0 Species - Rat

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity:	The product contains a substance which may have hazardous effects on the environment.
Toxicity:	No data available.
Ecological information on ingredients.	
Nickel Sulfate:	Acute aquatic toxicity $LE(C)_{50}$: 0.1 < L(E)C50 ≤ 1 M factor (Acute): 1 Chronic aquatic toxicity M factor (Chronic): 1
Ammonia... %:	Acute aquatic toxicity $LE(C)_{50}$: 0.1 < L(E)C50 ≤ 1 M factor (Acute): 1 Acute toxicity - fish LC_{50}, 96 hours: 0.53 mg/l, Freshwater fish; LC_{50}, 96 hours: 0.75 -3.4 mg/l, Freshwater fish; LC_{50}, 96 hours: 8.2 mg/l, Freshwater fish
Acute toxicity - aquatic invertebrates:	EC_{50}, 48 hours: 0.66 mg/l, Daphnia magna
Persistence and degradability.	
Persistence and degradability:	No data available.
Bioaccumulative potential.	
Bio-Accumulative Potential:	The product does not contain any substances expected to be bioaccumulating.
Mobility in soil.	
Mobility:	The product is soluble in water.
Other adverse effects.	
Other adverse effects:	Not determined.

ection 13. DISPOSAL CONSIDERATIONS

Waste treatment methods:	
General information:	Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.

Section 14. TRANSPORT INFORMATION

UN Number:	
UN No. (TDG):	3082
UN No. (IMDG):	3082
UN No. (ICAO):	3082
UN No. (DOT):	3082
UN proper shipping name:	
Proper shipping name (TDG):	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (NICKEL SULPHATE)
Proper shipping name (IMDG):	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (NICKEL SULPHATE)
Proper shipping name (ICAO):	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (NICKEL SULPHATE)
Proper shipping name (DOT):	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (NICKEL SULPHATE)
Transport hazard class(es):	
TDG class	9
TDG label(s)	9
IMDG class	9
ICAO class/division	9
Packing group:	
TDG Packing Group	III
IMDG Packing Group	III
ICAO Packing Group	III
DOT Packing Group	III
Special precautions for user:	
EmS:	F-A, S-F
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information required

Section 15. REGULATORY INFORMATION

National regulations:	The customer is advised to check if there are specific local or national regulations specifically applicable to the chemicals contained in the product. The hazards statement for this product is in accordance with international regulations, always observing the most stringent requirements.
SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities:	Exempt.
CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA):	Nickel Sulphate.
SARA Extremely Hazardous Substances EPCRA Reportable Quantities:	Exempt.
SARA 313 Emission Reporting:	Nickel Sulphate.
CAA Accidental Release Prevention:	HAP Nickel Sulphate.
SARA (311/312) Hazard Categories:	Acute Chronic.
OSHA Highly Hazardous Chemicals:	Exempt.
US State Regulations:	
California Proposition 65 Carcinogens and Reproductive Toxins:	Nickel Sulphate.
California Directors List of Hazardous Substances:	Nickel Sulphate.
Inventories:	
US - TSCA:	All ingredients are present.

Section 16. OTHER INFORMATION

Classification abbreviations and acronyms:	Acute Tox. = Acute toxicity Carc. = Carcinogenicity Eye Dam. = Serious eye damage Eye Irrit. = Eye irritation Flam. Liq. = Flammable liquid Muta. = Germ cell mutagenicity Repr. = Reproductive toxicity Resp. Sens. = Respiratory sensitisation Skin Corr. = Skin corrosion Skin Irrit. = Skin irritation Skin Sens. = Skin sensitisation STOT RE = Specific target organ toxicity-repeated exposure STOT SE = Specific target organ toxicity-single exposure
Hazard statements in full:	H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 May cause respiratory irritation. H341 Suspected of causing genetic defects. H350 May cause cancer. H350i May cause cancer by inhalation. H360D May damage the unborn child. H372 Causes damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects.
NFPA - health hazard:	Temporary incapacitation, injury. (2)
NFPA - flammability hazard:	Will not burn. (0)
NFPA - instability hazard:	Normally stable. (0)

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