MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet complies with the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200.

1. Product and Supplier Identification

Product: **Lead Plate Copper Patina**

Product Use: Wipe on metal plating solution for stained glass crafts.

Supplier: **NOVACAN INDUSTRIES LTD.**
856 Washington Drive
Port Moody, BC V3H 3K8
Telephone: (888) 931-6422
Transport Emergency Telephone: +1(250) 263.2124

Manufacturer: As above

2. Composition

Component	% (w/w)	Exposure Limits
Sulfamic Acid (Crystal) (CAS No. 5329-14-6)	2-3	ACGIH-TLV 1 mg/m^3
Sulphuric Acid (CAS No.7664-93-9)	1-2	PEL-TWA 1 mg/m^3 TLV-STEL 3 mg/m^3 Designated A2 carcinogen only in concentrated mist or vapors (ACGIH)
Copper Sulphate (CAS No. 7758-98-7)	3-4	PEL-TWA 1 mg/m^3 as copper TLV-TWA 1 mg/m^3 as copper

3. Hazards Identification

Routes of Entry: (under normal conditions of use)

Skin Contact: Moderate Eye Contact: Major Ingestion: Moderate Inhalation: Minor

Effects of Short-Term (Acute) Exposure:

Inhalation: Vapor or mist in the 50 to 100 ppm range can cause severe nasal irritation, sore throat, choking, coughing and difficulty breathing. Prolonged exposures can cause burns and ulcers to the nose and throat.

Skin Contact: Contact with liquid may cause severe irritation, burns. Vapor or mist may cause redness, irritation and burns if contact is prolonged.

Eye Contact: Liquid contact can cause irritation, corneal burns, and conjunctivitis. Severe permanent injury or blindness may result.

Hazards Identification, continued

Ingestion: Liquid can cause severe corrosive burns to mouth, throat, esophagus and stomach. Symptoms may include difficulty in swallowing, intense thirst, nausea, vomiting, and diarrhea and in severe cases, collapse and death. Small amounts of acid that enter the lungs during ingestion or vomiting (aspiration) can cause serious lung injury and death.

Effects of Long-Term (Chronic) Exposure:

Repeated exposure to low concentrations of liquid, mist or vapor can cause redness, swelling, corrosive burns, and pain (dermatitis). No evidence of carcinogenicity in human studies. This product does not accumulate in the body.

Medical Conditions Aggravated By Exposure:

Pre-existing respiratory and skin disorders.

4. First Aid Measures

Eye Contact: Immediately flush contaminated eye(s) with lukewarm, gently running water for 30 minutes, holding eyelids open. Seek medical attention if irritation persists.

Skin Contact: Wash affected area immediately with mild soap and water and continue for 15 minutes. If irritation persists, seek immediate medical attention. Remove any contaminated clothing and launder clothing before reuse.

Inhalation: This is an unlikely route of entry, but if victim has been exposed to vapors remove to fresh air. If breathing has stopped, a trained person should perform artificial respiration. Get medical attention immediately.

Ingestion: If small amounts have been ingested, **do not induce vomiting**. Dilute contents of stomach with 1-2 glasses of water. If vomiting occurs naturally have victim lean forward to reduce risk of aspiration. Seek immediate medical attention.

5. Fire Fighting Measures

Flash point:	Not Applicable
Autoignition temperature:	Not applicable. See information under “Fire Fighting Instructions”
Lower Explosive Limit:	Not established
Upper Explosion Limit:	Not established
Sensitivity to Impact:	Not sensitive.
Sensitivity to Static Discharge:	Not sensitive.

Hazardous Combustion Products: Sulphur and cupric oxides, and if heated to dryness, copper fume may be produced. Sulfur dioxide, sulfur trioxide and ammonia gases may be released in fire, if water is allowed to evaporate.

Extinguishing Media: No specific recommendation. Use media to suppress surrounding fire.

Fire Fighting Instructions: Do not enter confined fire space without proper personal protection. Use approved positive pressure self-contained breathing apparatus. Do not use water except as a fog. Cool surrounding containers with water spray.

Fire Fighting Measures, continued

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX:

HEALTH: 2 - Short exposure could cause temporary or residual injury.

FLAMMABILITY: 0 - Will not burn.

REACTIVITY: 1 - Normally stable but can become unstable at elevated temperatures and pressures, or may react non-violently with water.

SPECIFIC HAZARDS: Corrosive

6. Accidental Release Measures

Personal Protection: Evacuate unnecessary personnel from spill area. Wear appropriate personal protective equipment. Ventilate area. Do not touch spilled product without proper personal protection. See Section 8 for proper protective equipment to be worn while cleaning an accidental spill.

Environmental Precautions: Implement spill control plan. Stop or reduce leak if safe to do so. Prevent from entering sanitary or storm sewers, waterways, or confined spaces. Use inert materials such as earth or sand to form dike. Keep from contacting aquatic life.

Remedial Measures: Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Use all appropriate personal protective equipment. For small spills: absorb with neutralizing materials such as soda ash or lime and collect in sealed containers. Flush area with water. For large spills, contain and collect spilled material if possible. Notify government occupational health and safety and environmental authorities as per applicable regulations.

7. Handling and Storage

Handling Procedures: Prevent release of vapor or mist into workplace air. Ensure adequate ventilation. Have emergency equipment readily available. Have soda ash readily available for neutralization. Keep containers closed when not in use. Wash face and hands thoroughly after handling and before eating, drinking, or using tobacco products.

Storage: Store in a cool, dry, well ventilated area, out of direct sunlight and away from heat sources. Store away from incompatible materials such as oxidizing materials, reducing materials, and strong bases. Keep storage area separate from populated work areas.

8. Exposure Controls, Personal Protection

Engineering Controls: Use general or local exhaust ventilation to maintain exposure below the exposure limits.

Respiratory Protection: If respiratory protection is required, NIOSH recommends for sulphuric acid vapor or mist in air:

Up to 50 ppm: Chemical cartridge respirator with inorganic acid cartridge(s), powered air-purifying respirator with appropriate cartridge(s), Supplied Air Respirator (SAR), or a full face-piece SCBA.

IDLH Conditions (50 ppm) or Planned Entry in Unknown Concentrations: Positive pressure, full face-piece SCBA, or positive pressure full face-piece SAR with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister, or escape type SCBA.

NOTE: Air purifying respirators do not protect against oxygen deficient atmospheres.

Exposure Controls, Personal Protection, continued

Skin protection: Wear impervious gloves and boots and/or other protective clothing according to circumstances.

Eye and Face Protection: Eye protection is required. Chemical safety goggles are recommended. The wearing of contact lenses is not recommended.

Footwear: As required by worksite rules.

Other: Have a safety shower and eye wash station readily available in the immediate work area.

9. Physical and Chemical Properties

Appearance:	Clear pale blue liquid	**Vapor Density:**	Not determined
		Freezing Point	Not determined
Odor:	None	**Boiling Point:**	Not determined
Odor Threshold:	Not determined	**Critical Temperature:**	Not applicable.
pH:	2 - 4	**Relative Density:**	1.03 (water = 1)
Vapor Pressure:	Not determined		
Solubility:	Completely soluble in water	**Partition Coefficient:**	No data
		Evaporation Rate:	Not determined

10. Stability and Reactivity

Chemical Stability: Stable. In water solution, slowly hydrolyzes to form ammonium sulfate and bisulfate.

Incompatibility: Very corrosive to most metals, producing flammable hydrogen gas. Reacts violently with bases to produce heat. Reacts with reducing agents to produce heat, fire and flammable hydrogen gas. Reacts with oxidizing agents to produce heat. Contact with explosives may cause detonation. Reacts with cyanides to produce toxic cyanide gas, and sulphides to produce toxic hydrogen sulphide gas. Also reacts with nitric acid and chlorine.

Hazardous Decomposition Products: Sulphur and cupric oxides. Sulfur dioxide, sulfur trioxide and ammonia gases may be released in fire, if water is allowed to evaporate.

Hazardous Polymerization: Will not occur

11. Toxicological Information

Acute Exposure: The theoretical LD_{50} (rat/oral) for Lead Plate is >5000 mg/kg

Chronic Exposure:	See Section 3.
Exposure Limits:	See Section 2.
Irritancy:	See Section 3.
Sensitization:	See Section 3.
Carcinogenicity:	See Section 2
Teratogenicity:	No reports for ingestion or inhalation of copper compounds
Reproductive toxicity:	Not available
Mutagenicity:	Inconclusive results
Synergistic products:	None reported.

12. Ecological Information

Environmental toxicity: Copper sulphate is a severe marine pollutant.

Biodegradability: No data available.

13. Disposal Considerations

Neutralize residues and cosult the appropriate Federal, State, and Local regulatory agencies to ascertain proper disposal procedures. Depending on usage, after use, byproducts may contain solder and/or other metals. It is recommended that each user take into account the additional contaminants introduced during usage when disposing and handling of waste. Place used and contaminated material and packagings into suitable containers and dispose of as controlled waste.

14. Transport Information

Department of Transport (49 CFR): Corrosive Liquid, Acidic, Inorganic, n.o.s. (Sulphuric acid, Sulphamic acid), Class 8, UN 3264, P.G. II

International Air Transport Association (IATA): Corrosive Liquid, Acidic, Inorganic, n.o.s. (Sulphuric acid, Sulphamic acid), Class 8, UN 3264, P.G. II

1 Gallon Containers
International Maritime Organization (IMO): Corrosive Liquid, Acidic, Inorganic, n.o.s. (Sulphuric acid, Sulphamic acid), Marine Pollutant, Class 8, UN 3264, P.G. II
EmS F-A, S-B, Stowage Category “B”

8 Ounce Containers
International Maritime Organization (IMO): Corrosive Liquid, Acidic, Inorganic, n.o.s. (Sulphuric acid, Sulphamic acid), Limited Quantity, Marine Pollutant, Class 8, UN 3264, P.G. II
EmS F-A, S-B, Stowage Category “A”
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15. Regulatory Information

UNITED STATES – FEDERAL REGULATIONS:

TOXIC SUBSTANCES CONTROL ACT (TSCA): All components are listed in the inventory.

OSHA, 29 CFR 1910, Subpart Z: Meets the criteria for a hazardous substance.

CERCLA, 40 CFR 302: RQ, Cupric sulphate 4.54 Kg, Sulphuric acid, 454 Kg

SARA 302, 40 CFR 355: Sulphuric Acid listed. Threshold Planninng Quantity 454 Kg

SARA 313, 40 CFR 372: Sulphuric Acid is subject to the reporting requirements.

SARA 311/312, 40 CFR 370: Immediate (Acute) Health, Delayed (Chronic) Health.

16. Other Information

Original Preparation Date: September 25, 2001

Prepared by: Kel-Ex Agencies Ltd., P.O. Box 52201, North Vancouver, BC, Canada, V7J 3V5

Comments: This Material Safety Data Sheet was prepared using information provided by Novacan Industries Ltd., and CCINFO. The information in the Material Safety Data Sheet is offered for your consideration and guidance when exposed to this product. Novacan Industries Ltd., expressly disclaims all expressed or implied warranties and assumes no responsibilities for the accuracy or completeness of the data contained herein. The data in this MSDS does not apply to use with any other product or in any other process.

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