

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: Black Patina For Zinc

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
Selenium Dioxide (CAS No.7746-08-4)	<1	PEL-TWA 0.2 mg/m ³ as selenium TLV-TWA 0.2 mg/m ³ as selenium Selenium dioxide is a suspected carcinogen
Copper Sulphate (CAS No. 7758-98-7)	2-3	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: Selenium is a severe irritant with immediate or delayed effects: cough, difficult breathing, chills, garlic breath, fever, headache, chemical pneumonia, and bronchial spasms.

Skin Contact: Solution may irritate the skin and area under nails. May lead to dermatitis and sensitization.

Eye Contact: Selenium in solution will irritate eyes. An allergic reaction may occur, as redness and/or puffiness.

Ingestion: Will irritate mouth, throat, esophagus, and stomach. May cause nausea, pallor, coated tongue, and gastrointestinal disorders.

Hazards Identification, continued

Effects of Long-Term (Chronic) Exposure:

The chronic effects may be dermatitis and skin sensitization from skin contact. Chronic toxicity may present itself as respiratory tract irritation, gastrointestinal symptoms, fatigue, pallor, and metallic taste. Garlic breath is a sign of selenium absorption.

Medical Conditions Aggravated By Exposure:

Pre-existing respiratory and skin disorders.

4. First Aid Measures

Eye Contact: 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 product is not expected to present an inhalation hazard at ambient conditions. 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: Rinse mouth with water. Dilute contents of stomach with 1-2 glasses of water. Do NOT induce vomiting. 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: Toxic selenium and hydrogen selenide fumes, and if heated to dryness, copper fume may be produced.

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. Prevent runoff to sewers and waterways. Treat as selenious acid solution. May produce highly toxic selenium fumes and Hydrogen Selenide. Flammable hydrogen gas may be liberated from contact with some metals. Toxic fumes of SO_x may be released above 400°C

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

SPECIFIC HAZARDS: Toxic

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. Contain spillage and neutralize with soda ash. Mop up with absorbent material and dispose of in DOT approved waste containers. Keep non-neutralized materials from spilling into sewers, storm drains, surface water, and soil. Comply with all applicable governmental regulations on spill reporting and handling and disposal of waste.

7. Handling and Storage

Handling Procedures: Prevent release of vapor or mist into workplace air. Ensure adequate ventilation. Have emergency equipment readily available. 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 active metals and alkalis. Keep storage area separate from populated work areas or food.

8. Exposure Controls, Personal Protection

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

Respiratory Protection: Use a NIOSH approved dust/fume respirator for acid gases when appropriate.

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

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 medium blue liquid	Vapor Density:	Not determined
Odor:	Acrid odor	Freezing Point	Not determined
Odor Threshold:	Not determined	Boiling Point:	101 °C
pH:	2	Critical Temperature:	Not applicable.
Vapor Pressure:	Not determined	Relative Density:	1.01 (water = 1)
Solubility:	Completely soluble in water	Partition Coefficient:	No data
		Evaporation Rate:	Not determined

10. Stability and Reactivity

Chemical Stability: Stable. Avoid heat – releases toxic gases with heat.

Incompatibility: Avoid contact with active metals and alkalis.

Hazardous Decomposition Products: Copper oxide, hydrogen selenide, and selenium fumes.

Hazardous Polymerization: Will not occur.

11. Toxicological Information

Acute Exposure: The theoretical LD₅₀ (rat/oral) for black patina for zinc is >5000 mg/kg

Chronic Exposure:	See Section 3.
Exposure Limits:	See Section 2.
Irritancy:	See Section 3.
Sensitization:	See Section 3.
Carcinogenicity:	Selenium dioxide is a suspected carcinogen.
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

Place used and contaminated material and packagings into suitable containers and dispose of as controlled waste. Review and follow all local, state, and national regulations.

14. Transport Information

Department of Transport (49 CFR): Environmentally Hazardous Substance, Liquid, n.o.s.(Copper Sulphate, Selenium Dioxide), Class 9, UN 3082, P.G. III

International Air Transport Association (IATA): Environmentally Hazardous Substance, Liquid, n.o.s.(Copper Sulphate, Selenium Dioxide), Class 9, UN 3082, P.G. III

1 Gallon Containers

International Maritime Organization (IMO): Environmentally Hazardous Substance, Liquid, n.o.s.(Copper Sulphate, Selenium Dioxide), Class 9, UN 3082, P.G. III, Marine Pollutant Ems F-A, S-F, Stowage Category "A"

8 Ounce Containers

International Maritime Organization (IMO): Environmentally Hazardous Substance, Liquid, n.o.s.(Copper Sulphate, Selenium Dioxide), Class 9, UN 3082, P.G. III, Limited Quantity Ems F-A, S-F, Stowage Category "A"

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 (10 pounds), Selenium dioxide, 4.54 Kg (10 pounds)

SARA 302, 40 CFR 355: Not listed

SARA 313, 40 CFR 372: Not listed

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.

Revisions: Reissued December 11, 2007