

Material Safety Data Sheet (MSDS)

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

Section 1 Material Identification

Product Name	Patina Stain – Malayan Buff
MSDS REVISION NUMBER	2
MANUFACTURER	Direct Colors Inc. 11115 N. Harrison
MANUFACTURER TELEPHONE NUMBER	877-255-2656

EMERGENCY TELEPHONE NUMBER: Use only in the event of an emergency involving a spill, leak, fire, exposure, or accident involving chemicals. Within the U.S, Canada, or the U.S. Virgin Islands, call CHEMTREC at 1-800-424-9300, 24 hours a day. Or, outside these areas, call (703) 527-3887. Collect calls are accepted.

REVISION DATE	October 2002
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Section 2 Composition

Component	%(w/w)	Exposure Limits
Hydrochloric Acid (CAS No. 7647-01-0)	2-3	OSHA PEL-TWA 5ppm Ceiling ACGIH TLV-TWA 5ppm Ceiling
Ferrous Sulphate (CAS No. 7720-78-7)	22-25	OSHA PEL-TWA 1 mg/m ³ for iron dusts and mists as Fe ACGIH TLV – TWA 1 mg/m ³ for iron dusts and mists as Fe

Section 3 Hazards Identification

Routes of Entry: (Under normal conditions of use)

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

EMERGENCY OVERVIEW:

Corrosive! The severity of damage depends on the duration of the exposure. In general, solutions and mists with a pH of 3 or less are a significant health concern. Contact with alkali liquids will generate heat. Contact with most metals will generate flammable hydrogen gas.

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. Severe exposures for a few minutes at 1000 to 2000 ppm can cause a life-threatening accumulation of fluid in the lungs called pulmonary edema. Symptoms of pulmonary edema such as shortness of breath may be delayed for 48 hours after exposure.

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

Eye Contact: Low concentrations of vapor or mist (10 - 35 ppm) can be immediately irritating and result in redness. Concentrated vapor, mist or splashed liquid can cause severe irritation, burns and permanent blindness.

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

Effects of Long-Term (Chronic) Exposure:

Repeated and prolonged exposure to low concentrations of mist or vapor can cause discoloration and damage to tooth enamel, bleeding of the nose and gums, gastrointestinal symptoms, and chronic bronchitis and gastritis. Repeated exposure to low concentrations of liquid, mist or vapor can cause redness, swelling, sensitization, and pain (dermatitis). Metallic taste and garlic breath are signs of selenium absorption. 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.

Section 4 First Aid Measures

Inhalation: Take precautions to ensure your own safety before attempting rescue. Wear appropriate personal protective equipment and use the 'buddy' system. Remove the victim to fresh air. If breathing has stopped, begin artificial respiration, or if the heart has stopped, begin cardiopulmonary resuscitation (CPR) immediately. Oxygen should be administered by a trained person. Ensure victim is completely at rest - allow no physical exertion. Symptoms may be delayed for up to 48 hours. Immediately transport victim to an emergency medical facility.

Ingestion: Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or is convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 300 mL (10 oz.) of water. If milk is available,

administer AFTER the water. If vomiting occurs naturally, have the victim lean forward to reduce risk of aspiration. Repeat administration of water. Immediately transport to emergency medical facility.

Skin contact: Avoid direct contact. Wear impervious protective gloves if necessary. Immediately flush contaminated areas with lukewarm, gently running water for at least 20 minutes. Under running water, remove contaminated clothing, shoes, and leather goods such as watchbands and belts. **Do not interrupt flushing** - have emergency vehicle wait if necessary. Transport victim to emergency medical facility. Decontaminate clothing, shoes and leather goods before reuse or discarding.

Eye Contact: Immediately flush contaminated eye(s) with lukewarm, gently running water for at least 30 minutes while holding the eyelid(s) open. Take care not to rinse contaminated water into a non-affected eye. Neutral saline solution may be used for flushing if available. **Do not interrupt flushing** - keep emergency vehicle waiting if necessary. If irritation persists, repeat flushing. Transport victim to emergency medical facility.

General Comments: Provide general supportive measures (comfort, warmth, rest). Seek medical attention for all exposures except minor instances of inhalation of skin contact. First-aid procedures should be reviewed by appropriate personnel familiar with hydrochloric acid and its conditions of use in the workplace.

Section 5 Fire Fighting Measures

Flash point:	Not Applicable
Autoignition temperature:	Not Applicable. See information under "Fire fighting Instructions"
Lower Explosive Limit:	Not established
Upper Explosive Limit:	Not established
Sensitivity to Impact:	Not Sensitive
Sensitivity to Static Discharge:	Not Sensitive

Hazardous combustion products: None. See Hazardous Decomposition products in section 10 for information on thermal decomposition.

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

Fire Fighting Instructions: Wear adequate personal protective equipment. Use water to keep fire-exposed containers cool to prevent rupture. Use water spray or fog to reduce or direct vapors. Do not direct water at source of leak. Trained professional may neutralize a spill. Contact with common metals produces hydrogen gas that may form explosive mixtures in air.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX:

HEALTH: 3 - Very short exposure could cause serious temporary or residual injury requiring immediate attention.

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.

Section 6 Accidental Release Measures

Personal Protection: Evacuate unnecessary personnel from spill area and keep unprotected persons upwind. Wear appropriate personal protective equipment. Ventilate area. Vapor is heavier than air and will collect in low areas. Do not touch spilled hydrochloric acid.

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 a dike.

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. In the United States, releases over 5,000 pounds must be reported to the National Response Center at 1-800-424-8802.

Section 7 Handling and Storage

Handling Procedures: Prevent release of vapor or mist into workplace air. Ensure adequate ventilation. Have emergency equipment readily available. When diluting, slowly add acid to the water to avoid boiling or splattering. 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 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.

Section 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 hydrogen chloride in air:

Up to 50 ppm: Chemical cartridge respirator with hydrogen chloride cartridge(s), powered air purifying respirator with appropriate cartridges(s), Supplied Air Respirator (SAR), or a full face piece SCBA

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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.

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.

Section 9 Physical and Chemical Properties

Appearance:	Clear pale green liquid (Malayan Buff)
Odor:	Acrid odor
Odor Threshold:	Not determined
pH:	<1
Vapor Pressure:	Not determined
Solubility:	Completely soluble in water
Vapor Density:	Not Determined
Freezing Point:	Zero Degrees Celsius
Boiling Point:	108 Degrees Celsius
Critical Temperature:	Not applicable.
Relative Density:	1.18 (water = 1)
Partition Coefficient:	No data
Evaporation Rate:	Not Determined

Section 10 Stability and Reactivity

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

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. Reacts with carbides, turpentine, phosphorus hydrogen sulphide, organic materials, and alkalis. Contact with

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explosives may cause detonation. Reacts with cyanides to produce toxic cyanide gas, and sulphides to produce toxic hydrogen sulphide gas.

Hazardous Decomposition Products: Thermal decomposition liberates toxic corrosive fumes of hydrogen chloride, chlorine, manganese, iron and chromium oxides.

Hazardous Polymerization: Will not occur

Section 11 Toxicological Information

Acute Exposure: The theoretical LD 50 (rat/oral) for Patina Stain is > 3000 mg/kg

Chronic Exposure:	See Section 3
Exposure Limits:	See Section 2
Irritancy:	See Section 3
Sensitization:	See Section 3
Carcinogenicity:	None reported for this valence of chromium
Teratogenicity:	None
Reproductive toxicity:	Not Available
Mutagenicity:	None
Synergistic Products:	None reported

Section 12 Ecological Information

Environmental toxicity: Moderate toxicity to aquatic life.

Biodegradability: Expected to bioaccumulate

Section 13 Disposal Considerations

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

Section 14 Transportation

Department of Transportation (49 CFR): Corrosive Liquid, Acidic, Inorganic, n.o.s. (contains ferrous sulphate and hydrochloric acid), Class 8, UN 3264, P.G. II, RQ 4.54 kg(sodium dichromate), or 550 liters of Patina Stain.

International Air Transportation Association (IATA): Corrosive Liquid, Acidic, Inorganic, n.o.s. (contains ferrous sulphate and hydrochloric acid), Class 8, UN 3264, P.G. II

International Maritime Organization (IMO): Corrosive Liquid, Acidic, Inorganic, n.o.s. (contains ferrous sulphate and hydrochloric acid), Class 8, UN 3264, P.G. II

Section 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: Hydrochloric Acid, 2270 Kg (5000 pounds), Sodium dichromate 4.54 kg, (10 pounds)

SARA 302, 40 CFR 355: No ingredients listed

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

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

Section 16 Other Information

Preparation Date: July 15, 2002

Comments: This Material Safety Data Sheet was prepared using information provided by Direct Colors Inc. The information in the Material Safety Data Sheet is offered for your consideration and guidance when exposed to this product. Direct Colors Inc., 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: 2