



# SAFETY DATA SHEET

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Version 2

ES-400

E-Stain Bronze ES-400

## 1. IDENTIFICATION

### Product identifier

**Product Name** E-Stain Bronze ES-400

### Other means of identification

**Product Code** ES-400

### Recommended use of the chemical and restrictions on use

**Recommended Use** Restricted to professional users.

**Uses advised against** Consumer use

### Details of the supplier of the safety data sheet

#### **Supplier Address**

Solomon Colors, Inc.  
4050 Color Plant Road  
Springfield, IL 62702

#### **Manufacturer Address**

Solomon Colors, Inc.  
4050 Color Plant Road  
Springfield, IL 62702

**24 Hour Emergency Phone Number** 800-373-7542

## 2. HAZARDS IDENTIFICATION

### Classification

### **OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Respiratory sensitization	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1B

### Label elements

#### Emergency Overview

Danger

**Hazard statements**

Harmful if swallowed  
Harmful if inhaled  
Causes severe skin burns and eye damage  
May cause allergy or asthma symptoms or breathing difficulties if inhaled  
May cause an allergic skin reaction  
May cause genetic defects  
May cause cancer  
May damage fertility or the unborn child  
Causes damage to organs through prolonged or repeated exposure

**Appearance** Cloudy liquid**Physical state** No information available**Odor** Slight**Precautionary Statements - Prevention**

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Use only outdoors or in a well-ventilated area  
Do not breathe dust/fume/gas/mist/vapors/spray  
In case of inadequate ventilation wear respiratory protection  
Contaminated work clothing should not be allowed out of the workplace

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention  
IF IN EYES: 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  
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
Wash contaminated clothing before reuse  
If skin irritation or rash occurs: Get medical advice/attention  
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing  
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

**Precautionary Statements - Storage**

Store in accordance with local regulations  
Store in a well-ventilated place. Keep container tightly closed

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)****Other Information**

- May be harmful if swallowed
- Causes mild skin irritation
- Very toxic to aquatic life with long lasting effects
- Toxic to aquatic life

Unknown acute toxicity

12% of the mixture consists of ingredient(s) of unknown toxicity

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS No.	Weight-%	Trade Secret
Ferrous Sulfate	7720-78-7	1-25	*
Copper Sulfate Pentahydrate	7758-99-8	0-25	*
Copper Chloride	7447-39-4	0-25	*
Manganese Chloride	7773-01-5	0-25	*
Sodium dichromate	10588-01-9	0-15	*

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

#### 4. FIRST AID MEASURES

##### Description of first aid measures

<b>General advice</b>	In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
<b>Eye contact</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>Skin Contact</b>	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
<b>Inhalation</b>	If fumes from reactions are inhaled, move to fresh air immediately. Call a physician or poison control center immediately.
<b>Ingestion</b>	If swallowed, call a poison control center or physician immediately. Clean mouth with water and drink afterwards plenty of water.

##### Most important symptoms and effects, both acute and delayed

**Symptoms** No information available.

##### Indication of any immediate medical attention and special treatment needed

**Note to physicians** Treat symptomatically.

#### 5. FIRE-FIGHTING MEASURES

##### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media** Caution: Use of water spray when fighting fire may be inefficient.

##### Specific hazards arising from the chemical

Contact with metals may evolve flammable hydrogen gas. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Runoff may pollute waterways.

**Hazardous combustion products** Contact with metals may evolve flammable hydrogen gas. Hydrogen chloride.

##### Explosion data

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

##### Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal precautions** Keep people away from and upwind of spill/leak. Ventilate affected area. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. Avoid contact with skin, eyes and inhalation of vapors.

### Environmental precautions

**Environmental precautions** Prevent entry into waterways, sewers, basements or confined areas. Prevent further leakage or spillage if safe to do so. See Section 12 for additional ecological information.

### Methods and material for containment and cleaning up

**Methods for containment** Dike far ahead of liquid spill for later disposal. Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13).

**Methods for cleaning up** Pick up and transfer to properly labeled containers.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Advice on safe handling** Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Avoid breathing vapors or mists. Wash thoroughly after handling.

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep container tightly closed in a dry and well-ventilated place. Keep/store only in original container. Keep in properly labeled containers. Keep from freezing.

**Incompatible materials** Strong oxidizing agents. Metals. Alkali.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ferrous Sulfate 7720-78-7	TWA: 1 mg/m <sup>3</sup> Fe	(vacated) TWA: 1 mg/m <sup>3</sup> Fe	TWA: 1 mg/m <sup>3</sup> Fe
Copper Sulfate Pentahydrate 7758-99-8	TWA: 1 mg/m <sup>3</sup> Cu dust and mist	-	IDLH: 100 mg/m <sup>3</sup> Cu dust and mist TWA: 1 mg/m <sup>3</sup> Cu dust and mist
Copper Chloride 7447-39-4	TWA: 1 mg/m <sup>3</sup> Cu dust and mist	-	IDLH: 100 mg/m <sup>3</sup> Cu dust and mist TWA: 1 mg/m <sup>3</sup> Cu dust and mist
Manganese Chloride 7773-01-5	TWA: 0.02 mg/m <sup>3</sup> Mn TWA: 0.1 mg/m <sup>3</sup> Mn	(vacated) Ceiling: 5 mg/m <sup>3</sup> Ceiling: 5 mg/m <sup>3</sup> Mn	IDLH: 500 mg/m <sup>3</sup> Mn TWA: 1 mg/m <sup>3</sup> Mn STEL: 3 mg/m <sup>3</sup> Mn
Sodium dichromate 10588-01-9	TWA: 0.05 mg/m <sup>3</sup> Cr	TWA: 5 µg/m <sup>3</sup> (vacated) Ceiling: 0.1 mg/m <sup>3</sup> Ceiling: 0.1 mg/m <sup>3</sup> CrO <sub>3</sub> applies to any operations or sectors for which the Hexavalent Chromium standard [29 CFR 1910.1026] is stayed or is otherwise not in effect	IDLH: 15 mg/m <sup>3</sup> Cr(VI) TWA: 0.0002 mg/m <sup>3</sup> Cr

NIOSH IDLH *Immediately Dangerous to Life or Health*

#### Other Information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

#### Appropriate engineering controls

##### Engineering Controls

Showers  
Eyewash stations  
Ventilation systems.

#### Individual protection measures, such as personal protective equipment

##### Eye/face protection

Tight sealing safety goggles. Face protection shield.

##### Skin and body protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

##### Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

#### General Hygiene Considerations

Wash face, hands and any exposed skin thoroughly after handling. Use personal protective equipment as required. Avoid prolonged or repeated contact with skin. Avoid breathing (dust, vapor, mist, gas). When using do not eat, drink or smoke. Wash contaminated clothing before reuse.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Information on basic physical and chemical properties

##### Physical state

No information available

##### Appearance

Cloudy liquid

##### Color

Green

##### Odor

Slight

##### Odor threshold

No information available

#### Property

##### Values

##### Remarks • Method

##### pH

No information available

##### Melting point/freezing point

No information available

##### Boiling point / boiling range

No information available

##### Flash point

No information available

<b>Evaporation rate</b>	No information available
<b>Flammability (solid, gas)</b>	No information available
<b>Flammability Limit in Air</b>	
<b>Upper flammability limit:</b>	No information available
<b>Lower flammability limit:</b>	No information available
<b>Vapor pressure</b>	No information available
<b>Vapor density</b>	No information available
<b>Specific Gravity</b>	No information available
<b>Water solubility</b>	No information available
<b>Solubility in other solvents</b>	No information available
<b>Partition coefficient</b>	No information available
<b>Autoignition temperature</b>	No information available
<b>Decomposition temperature</b>	No information available
<b>Kinematic viscosity</b>	No information available
<b>Dynamic viscosity</b>	No information available
<b>Explosive properties</b>	No information available
<b>Oxidizing properties</b>	No information available

**Other Information**

<b>Softening point</b>	No information available
<b>Molecular weight</b>	No information available
<b>VOC Content (%)</b>	No information available
<b>Density</b>	No information available
<b>Bulk density</b>	No information available

**10. STABILITY AND REACTIVITY**

**Reactivity**

No data available

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**

None under normal processing.

**Conditions to avoid**

Extremes of temperature and direct sunlight.

**Incompatible materials**

Strong oxidizing agents. Metals. Alkali.

**Hazardous Decomposition Products**

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Hydrogen chloride.

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

<b>Product Information</b>	No data available
<b>Inhalation</b>	No data available.
<b>Eye contact</b>	No data available.
<b>Skin Contact</b>	No data available.
<b>Ingestion</b>	No data available.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ferrous Sulfate 7720-78-7	= 237 mg/kg ( Rat )	-	-
Copper Sulfate Pentahydrate 7758-99-8	= 960 mg/kg ( Rat ) = 300 mg/kg ( Rat )	> 2 g/kg ( Rat )	-
Copper Chloride 7447-39-4	= 584 mg/kg ( Rat )	-	-
Manganese Chloride 7773-01-5	= 250 mg/kg ( Rat )	-	-
Sodium dichromate 10588-01-9	= 50 mg/kg ( Rat )	= 336 mg/kg ( Rabbit )	= 0.124 mg/L ( Rat ) 4 h

### Information on toxicological effects

**Symptoms** No information available.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** No information available.

Chemical Name	ACGIH	IARC	NTP	OSHA
Sodium dichromate 10588-01-9	A1	Group 1	Known	X

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*A1 - Known Human Carcinogen*

*IARC (International Agency for Research on Cancer)*

*Group 1 - Carcinogenic to Humans*

*NTP (National Toxicology Program)*

*Known - Known Carcinogen*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

*X - Present*

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Chronic toxicity** May cause adverse liver effects.

**Target Organ Effects** Eyes, kidney, liver, Respiratory system, Skin.

**Aspiration hazard** No information available.

### Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

**ATEmix (oral)** 2721 mg/kg

**ATEmix (inhalation-dust/mist)** 10 mg/l

## 12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a marine pollutant according to DOT.

### Ecotoxicity

18.9% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Ferrous Sulfate 7720-78-7	-	925: 96 h Poecilia reticulata mg/L LC50 static 0.56: 96 h Cyprinus carpio mg/L LC50 semi-static	152: 48 h Daphnia magna mg/L EC50 6.15 - 9.26: 48 h Daphnia magna mg/L EC50 Static
Copper Sulfate Pentahydrate 7758-99-8	-	0.66 - 1.15: 96 h Lepomis macrochirus mg/L LC50 semi-static 0.96 - 1.8: 96 h Lepomis macrochirus mg/L LC50 static 0.1478 - 0.165: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.09 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 static 0.6752: 96 h Pimephales promelas mg/L LC50 static	0.147 - 0.227: 48 h Daphnia magna mg/L EC50 Static
Sodium dichromate 10588-01-9	-	33.2: 96 h Pimephales promelas mg/L LC50 flow-through 69: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 213: 96 h Lepomis macrochirus mg/L LC50 static	0.098 - 0.129: 48 h Daphnia magna mg/L EC50 1.4: 24 h Daphnia magna mg/L EC50

### Persistence and degradability

No information available.

### Bioaccumulation

No information available.

### Other adverse effects

No information available

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

#### **Disposal of wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

#### **Contaminated packaging**

Do not reuse container.

Chemical Name	California Hazardous Waste Status
Copper Sulfate Pentahydrate 7758-99-8	Toxic
Copper Chloride 7447-39-4	Toxic
Manganese Chloride 7773-01-5	Toxic
Sodium dichromate 10588-01-9	Toxic Corrosive Ignitable



## 14. TRANSPORT INFORMATION

<b><u>DOT</u></b>	
<b>Marine pollutant</b>	Not regulated (If shipped in NON BULK packaging by ground transport) This product contains a chemical which is listed as a marine pollutant according to DOT.
<b><u>TDG</u></b>	
<b>UN/ID no.</b>	3265
<b>Proper shipping name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC N.O.S. (UREA HYDROCHLORIDE)
<b>Hazard Class</b>	8
<b>Packing Group</b>	III
<b>Marine pollutant</b>	This product contains a chemical which is listed as a marine pollutant according to TDG.
<b><u>ICAO (air)</u></b>	
<b>UN/ID no.</b>	3265
<b>Proper shipping name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC N.O.S. (UREA HYDROCHLORIDE)
<b>Hazard Class</b>	8
<b>Packing Group</b>	III
<b><u>IATA</u></b>	
<b>UN/ID no.</b>	3265
<b>Proper shipping name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC N.O.S. (UREA HYDROCHLORIDE)
<b>Hazard Class</b>	8
<b>Packing Group</b>	III
<b><u>IMDG</u></b>	
<b>UN/ID no.</b>	3265
<b>Proper shipping name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC N.O.S. (UREA HYDROCHLORIDE)
<b>Packing Group</b>	III
<b>Marine pollutant</b>	This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO

## 15. REGULATORY INFORMATION

### International Inventories

<b>TSCA</b>	Complies
<b>DSL/NDSL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Does not comply
<b>IECSC</b>	Complies
<b>KECL</b>	Does not comply
<b>PICCS</b>	Complies
<b>AICS</b>	Complies

### Legend:

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances

### US Federal Regulations

#### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Copper Sulfate Pentahydrate - 7758-99-8	1.0
Copper Chloride - 7447-39-4	1.0
Manganese Chloride - 7773-01-5	1.0
Sodium dichromate - 10588-01-9	0.1

#### SARA 311/312 Hazard Categories

<b>Acute health hazard</b>	No
<b>Chronic Health Hazard</b>	No
<b>Fire hazard</b>	No
<b>Sudden release of pressure hazard</b>	No
<b>Reactive Hazard</b>	No

#### CWA (Clean Water Act)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ferrous Sulfate 7720-78-7	1000 lb	-	-	X
Copper Sulfate Pentahydrate 7758-99-8	-	X	-	-
Copper Chloride 7447-39-4	10 lb	X	-	X
Sodium dichromate 10588-01-9	10 lb	X	-	X

#### CERCLA

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Ferrous Sulfate 7720-78-7	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ
Copper Chloride 7447-39-4	10 lb	-	RQ 10 lb final RQ RQ 4.54 kg final RQ
Sodium dichromate 10588-01-9	10 lb	-	RQ 10 lb final RQ RQ 4.54 kg final RQ

#### US State Regulations

