



# SAFETY DATA SHEET

Issue Date 25-Oct-2018

Revision Date 09-Dec-2020

Version 4

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 Use only in the event of an emergency involving a spill, leak, fire, exposure, or accident involving chemical

## 2. HAZARDS IDENTIFICATION

### Classification

#### **OSHA Regulatory Status**

This product is classified as hazardous according to the criteria contained in the Hazard Communication Standard 29 CFR 1910.1200 (known as HCS 2012) and the Hazardous Products Regulations SOR/2015-17 (known as WHMIS 2015).

Acute toxicity - Oral	Category 4.
Serious eye damage/eye irritation	Category 1
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 2

### Label elements

#### **Emergency Overview**

**Danger**

#### **Hazard statements**

Harmful if swallowed  
Causes serious 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  
 May cause damage to organs through prolonged or repeated exposure



**Appearance** Cloudy liquid

**Physical state** Liquid

**Odor** Slight

**Precautionary Statements - Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 In case of inadequate ventilation wear respiratory protection  
 Contaminated work clothing must not be allowed out of the workplace  
 Do not breathe dust/fume/gas/mist/vapors/spray

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention  
 Specific treatment see section 4 of the SDS.  
 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  
 IF ON SKIN: Wash with plenty of water and soap  
 If skin irritation or rash occurs: Get medical advice/attention  
 Wash contaminated clothing before reuse  
 IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing  
 If experiencing respiratory symptoms: Call a POISON CENTER or doctor  
 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell  
 Rinse mouth

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

**Other Information**

• Very toxic to aquatic life with long lasting effects

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS No.	Weight-%	Trade Secret
Proprietary Acid Solution	Proprietary	10-15	*
Ferrous Sulfate	7720-78-7	5-10	*
Copper Sulfate Pentahydrate	7758-99-8	1-5	*
Copper Chloride	7447-39-4	1-5	*
Manganese Chloride	7773-01-5	1-5	*
Sodium dichromate	10588-01-9	< 1	*

\*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>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<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 INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. If swallowed, call a poison control center or physician immediately.

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

<b>Symptoms</b>	May be harmful if swallowed. Causes serious 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. May cause damage to organs through prolonged or repeated exposure.
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### Indication of any immediate medical attention and special treatment needed

<b>Note to physicians</b>	Treat symptomatically.
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## 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** Thermal decomposition can lead to the release of irritating gases and vapors. Carbon monoxide. Carbon dioxide (CO<sub>2</sub>). Hydrogen chloride. Sulfur Oxides. Copper Oxides. Nitrogen oxides (NO<sub>x</sub>).

### 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 further leakage or spillage if safe to do so. Do not allow into any sewer, on the ground or into any body of water. 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. Magnesium, Phosphates, Acetylene, Hydrazine, and Zirconium. This material may be extremely hazardous in contact with chlorates and nitrates. Contact with hypochlorites (eg. Chlorine bleach, sulfides or cyanides) will liberate toxic gases. 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 respirable particulate matter TWA: 0.1 mg/m <sup>3</sup> Mn inhalable particulate matter	(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	STEL: 0.0005 mg/m <sup>3</sup> Cr(VI) inhalable particulate matter TWA: 0.0002 mg/m <sup>3</sup> Cr(VI) inhalable particulate matter S*	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

### Legend

\*S

*Skin - Skin Absorber*

*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

Liquid

#### Appearance

Cloudy liquid

#### Color

Green

#### Odor

Slight

#### Odor threshold

No information available

#### Property

#### Values

#### Remarks • Method

#### pH

No information available

<b>Melting point/freezing point</b>	No information available
<b>Boiling point / boiling range</b>	No information available
<b>Flash point</b>	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>	9.4 lbs/gal
<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. Magnesium, Phosphates, Acetylene, Hydrazine, and Zirconium. This material may be extremely hazardous in contact with chlorates and nitrates. Contact with hypochlorites (eg. Chlorine bleach, sulfides or cyanides) will liberate toxic gases. Alkali.

**Hazardous Decomposition Products**

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Hydrogen chloride. Sulfur oxides. Copper Oxides. Nitrogen oxides (NOx).

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

<b>Product Information</b>	The product has not been tested The product is classified based on the mixture components.
<b>Inhalation</b>	May cause sensitization by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>Eye contact</b>	Risk of serious damage to eyes. Avoid contact with eyes.
<b>Skin Contact</b>	Irritating to skin. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.
<b>Ingestion</b>	May be harmful if swallowed. Not for human consumption. Do not ingest. If swallowed then seek immediate medical assistance.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ferrous Sulfate 7720-78-7	= 319 mg/kg ( Rat )	= 155 mg/kg ( Rat )	-
Copper Sulfate Pentahydrate 7758-99-8	= 300 mg/kg ( Rat ) = 960 mg/kg ( Rat )	> 8 g/kg ( Rabbit )	-
Copper Chloride 7447-39-4	= 584 mg/kg ( Rat )	-	-
Manganese Chloride 7773-01-5	= 250 mg/kg ( Rat )	-	-
Sodium dichromate 10588-01-9	= 46 mg/kg ( Rat )	= 960 mg/kg ( Rabbit )	= 200 mg/m <sup>3</sup> ( Rat ) 4 h

### Information on toxicological effects

<b>Symptoms</b>	May be harmful if swallowed. Causes serious 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. May cause damage to organs through prolonged or repeated exposure.
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### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Skin corrosion/irritation</b>	Not classified. (Based on mixture components.).
<b>Serious eye damage/eye irritation</b>	Eye Damage Cat 1. (based on mixture components).
<b>Sensitization</b>	Skin Sensitizer Cat 1. May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	Contains a known or suspected mutagen.
<b>Carcinogenicity</b>	Category 1. May cause cancer. The table below indicates whether each agency has listed any ingredient as a carcinogen.

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*

<b>Reproductive toxicity</b>	Category 1B. Contains a known or suspected reproductive toxin.
<b>STOT - single exposure</b>	Not classified. (Based on mixture components).
<b>STOT - repeated exposure</b>	Category 2. (Liver, Kidney, Blood System).
<b>Aspiration hazard</b>	Not classified. (Based on mixture components).

### Numerical measures of toxicity - Product Information

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

ATEmix (oral) 1754.8 mg/kg

ATEmix (dermal) 2071.1 mg/kg

ATEmix (inhalation-gas) > 20,000 ppm  
 ATEmix (inhalation-dust/mist) 12.525 mg/l  
 ATEmix (inhalation-vapor) > 20 mg/l

**12. ECOLOGICAL INFORMATION**

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

**Ecotoxicity**

Very toxic to aquatic life with long lasting effects  
 0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

**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

### DOT

#### **Marine pollutant**

Not regulated (If shipped in NON BULK packaging by ground transport) Exempt under DOT 49 CFR 173.154 (d). This material is corrosive to aluminum only.

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

### ICAO (air)

#### **UN/ID no.**

3265

#### **Proper shipping name**

CORROSIVE LIQUID, ACIDIC, ORGANIC N.O.S. (UREA HYDROCHLORIDE)

#### **Hazard Class**

8

#### **Packing Group**

III

### IATA

#### **UN/ID no.**

3265

#### **Proper shipping name**

CORROSIVE LIQUID, ACIDIC, ORGANIC N.O.S. (UREA HYDROCHLORIDE)

#### **Hazard Class**

8

#### **Packing Group**

III

### IMDG

#### **UN/ID no.**

3265

#### **Proper shipping name**

CORROSIVE LIQUID, ACIDIC, ORGANIC N.O.S. (UREA HYDROCHLORIDE)

#### **Hazard Class**

8

#### **Packing Group**

III

#### **Marine pollutant**

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 Chloride - 7447-39-4	1.0
Copper Sulfate Pentahydrate - 7758-99-8	1.0
Manganese Chloride - 7773-01-5	1.0
Sodium dichromate - 10588-01-9	0.1

#### **SARA 311/312 Hazard Categories**

See section 2 for more information

#### **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

#### **California Proposition 65**

This product contains the following Proposition 65 chemicals

Chemical Name	California Proposition 65
Hexavalent chromium - 18540-29-9	Carcinogen Developmental Female Reproductive Male Reproductive

**U.S. State Right-to-Know Regulations**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Water 7732-18-5	-	-	X
Ferrous Sulfate 7720-78-7	X	X	X
Copper Chloride 7447-39-4	X	X	X
Copper Sulfate Pentahydrate 7758-99-8	X	-	X
Manganese Chloride 7773-01-5	X	-	X
Sodium dichromate 10588-01-9	X	X	X

**16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION**

<b>NFPA</b>	Health hazards 3	Flammability 1	Reactivity 0	Physical and Chemical Properties -
<b>HMIS</b>	Health hazards 3	Flammability 1	Physical hazards 0	Personal protection X

**Prepared By** Solomon Colors - Lab Technical Services  
**Issue Date** 25-Oct-2018  
**Revision Date** 09-Dec-2020  
**Revision Note**  
 Periodic Review

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**