

## Praxair Material Safety Data Sheet

### 1. Chemical Product and Company Identification

<b>Product Name:</b> Color standards for acetylene control tests (MSDS No. P-4899-D)		<b>Trade Name:</b> Color Standards for Acetylene Control Tests
<b>Chemical Name:</b> Mixtures of hydrochloric acid, cobalt (II) chloride, copper (II) sulfate pentahydrate, ferric chloride, and water		<b>Synonyms:</b> Part No. 5738-8700
<b>Formula:</b> Mixtures of HCl, CoCl <sub>2</sub> , CuSO <sub>4</sub> ·5H <sub>2</sub> O, FeCl <sub>3</sub> , & H <sub>2</sub> O		<b>Chemical Family:</b> Not applicable
<b>Telephone:</b>	<b>Emergencies:</b> 1-800-645-4633* <b>CHEMTREC:</b> 1-800-424-9300* <b>Routine:</b> 1-800-PRAXAIR	<b>Company Name:</b> Praxair, Inc. 39 Old Ridgebury Road Danbury, CT 06810-5113

\* Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).

### 2. Composition/Information on Ingredients

See section 16 for important information about mixtures.

INGREDIENT	CAS NUMBER	CONCENTRATION	OSHA PEL	ACGIH TLV-TWA (2004)
Hydrochloric acid	7647-01-0	1%	5 ppm ceiling*	2 ppm ceiling*
Cobalt (II) chloride	7646-79-9	1-5%	None currently established (cobalt, 0.1 mg/m <sup>3</sup> )	None currently established (cobalt, 0.02 mg/m <sup>3</sup> )
Copper (II) sulfate pentahydrate	7758-99-8	0.7-1%	As copper dusts and mists, 1 mg/m <sup>3</sup>	As copper dusts and mists, 1 mg/m <sup>3</sup>
Ferric chloride	7705-08-0	10-15%	None currently established	Iron salts, soluble as Fe, 1 mg/m <sup>3</sup>
Water	7732-18-5	87.3-78%	None currently established	None currently established

\*Ceiling values are not Time Weighted Average (TWA).

### 3. Hazards Identification

#### EMERGENCY OVERVIEW

**WARNING! Toxic, corrosive, irritating liquid and vapor.**  
**May be harmful if inhaled or swallowed.**  
**Irritates the eyes, skin, and respiratory tract.**  
**May cause liver, kidney, heart, and thyroid damage.**  
**Self-contained breathing apparatus and protective clothing may be required/must be worn by rescue workers.**  
**Odor: Pungent, irritating**

**THRESHOLD LIMIT VALUE:** TLV ceiling, 2 ppm, HCl (ACGIH, 2004). TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

**EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:**

**INHALATION**—Vapors may irritate the respiratory tract, causing discomfort and discharge. If mists are inhaled, harmful amounts of material may be absorbed.

**SKIN CONTACT**—May irritate the skin causing local redness and possible swelling. May sensitize the skin of susceptible individuals. If skin contact is prolonged or widespread, potentially harmful amounts of material may be absorbed.

**SWALLOWING**—May cause nausea, stomach pain, diarrhea, vomiting, and flushing of the skin. May lower body temperature and cause seizures and coma. May damage the liver, kidney, heart, and thyroid.

**EYE CONTACT**—May irritate the eyes, causing redness and swelling of the conjunctiva and excess tearing.

**EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:** This solution contains copper sulfate pentahydrate, which has been associated with occupational liver disease. It also contains cobalt, which has been associated with chronic thyroid, liver, and heart damage in humans.

**OTHER EFFECTS OF OVEREXPOSURE:** This solution may cause an allergic skin reaction and possibly pulmonary sensitization in susceptible individuals.

**MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** The toxicology and the physical and chemical properties of the components suggest that overexposure is unlikely to aggravate existing medical conditions.

**SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:** None known.

**CARCINOGENICITY:** None of the components of this material is listed by NTP, OSHA, or IARC.

<b>4. First Aid Measures</b>
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**INHALATION:** Remove to fresh air. Call a physician if symptoms persist or if a large amount of mist has been inhaled.

**SKIN CONTACT:** Remove contaminated clothing and shoes and wash skin with plenty of soap and water. Wash clothing before reuse. If irritation persists or if contact was prolonged, call a physician.

**SWALLOWING:** If victim is conscious and alert, give at least two glasses of milk or water and induce vomiting. Never give anything by mouth to an unconscious, convulsive, or unresponsive person. Call a physician.

**EYE CONTACT:** Immediately flush eyes thoroughly with plenty of water and continue for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. See a physician, preferably an ophthalmologist, if discomfort persists.

**NOTES TO PHYSICIAN:** *In cases of massive exposure, chelation with EDTA (ethylenediaminetetraacetic acid) may be helpful to reduce toxic effects of absorbed metal ions.*

**NOTE:** *These solutions are used for comparison standards to determine the purity of gaseous acetylene. Users must be familiar with the proper use of and hazards associated with the equipment used.*

## 5. Fire Fighting Measures

<b>FLASH POINT</b> (test method):	Not applicable	
<b>AUTOIGNITION TEMPERATURE:</b>	Not applicable	
<b>FLAMMABLE LIMITS IN AIR</b> , % by volume:	<b>LOWER:</b> Not applicable	<b>UPPER:</b> Not applicable
<b>EXTINGUISHING MEDIA:</b> These solutions cannot catch fire. Use media appropriate for surrounding fire.		

**SPECIAL FIRE FIGHTING PROCEDURES: WARNING! Toxic, corrosive, irritating liquid and vapor. Do not get on skin, in eyes, or on clothing.** Evacuate all personnel from danger area. Wear self-contained breathing apparatus. Immediately deluge containers with water spray from maximum distance until cool; then move them away from fire area if without risk. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Heat of fire may build pressure in container, causing rupture. No part of a container should be subjected to temperatures above 125°F (52°C).

**HAZARDOUS COMBUSTION PRODUCTS:** Not applicable. Toxic fumes may result from heating to decomposition. Products of thermal decomposition include sulfur oxides, hydrogen chloride, and/or chlorine. (See section 10.)

## 6. Accidental Release Measures

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: WARNING! Toxic, corrosive, irritating liquid and vapor. Do not get on skin, in eyes, or on clothing.** Prevent runoff from contaminating surrounding environment. Use solid absorbent to pick up spilled material. Ventilate area of spill or move leaking container to a well-ventilated area.

**WASTE DISPOSAL METHOD:** Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

## 7. Handling and Storage

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Store in a cool, dry, well-ventilated area suitable for storage of chemical solutions. Store away from sources of heat and direct sunlight.

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Protect containers against physical damage. Keep container closed when not in use, even when empty. For other precautions in using this product, see section 16.

## 8. Exposure Controls/Personal Protection

### VENTILATION/ENGINEERING CONTROLS:

**LOCAL EXHAUST**—Use local exhaust ventilation with sufficient air flow velocity to keep vapor concentrations below the applicable TLVs in the worker's breathing zone.

**MECHANICAL (general)**—Not recommended as a primary ventilation system to control worker's exposure.

**SPECIAL**—None

**OTHER**—None

**RESPIRATORY PROTECTION:** Use an air-supplied respirator or a full-face, positive-pressure, self-contained breathing apparatus. Respiratory protection must conform to OSHA 29 CFR 1910.134. Select per OSHA 29 CFR 1910.134 and ANSI Z88.2.

**SKIN PROTECTION:** Wear rubber gloves. Select in accordance with OSHA 29 CFR 1910.132.

**EYE PROTECTION:** Select in accordance with OSHA 29 CFR 1910.133.

**OTHER PROTECTIVE EQUIPMENT:** Protective clothing where needed. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. Regardless of protective equipment, never touch live electrical parts.

## 9. Physical and Chemical Properties

<b>SPECIFIC GRAVITY</b> (H <sub>2</sub> O = 1):	1.127 to 1.22 (calculated)
<b>SPECIFIC GRAVITY</b> (Air = 1):	0.014 (estimated)
<b>VAPOR PRESSURE</b> at 68°F (20°C) and 1 atm:	0.3392 psig (2.34 kPa, 17.54 mm Hg) (estimated)
<b>SOLUBILITY IN WATER</b> , % by wt.:	100%
<b>PERCENT VOLATILES BY VOLUME:</b>	78.5% to 88%
<b>EVAPORATION RATE</b> (Butyl Acetate = 1):	Low
<b>pH:</b>	1.6
<b>BOILING POINT</b> at 1 atm:	212°F (100°C) (calculated)
<b>FREEZING POINT</b> at 1 atm:	26.6°F (-3.00°C) to 28.6°F (-1.89°C) (calculated)

**APPEARANCE, ODOR, AND STATE:** Clear, blue liquids; pungent, irritating odor.

## 10. Stability and Reactivity

**STABILITY:** ☐ Unstable ☒ Stable

**INCOMPATIBILITY (materials to avoid):** Aluminum and alloys, copper and alloys, carbon steel, oxidizers, strong alkalies, amines, carbonates. Water reactive compounds such as metal hydrides, alkali metals, metals and metal oxides, acetylene, hydrazine, nitromethane.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Thermal decomposition may produce sulfur oxides, hydrogen chloride, and/or chlorine. Contact with most metals may produce hydrogen.

**HAZARDOUS POLYMERIZATION:** ☐ May Occur ☒ Will Not Occur

**CONDITIONS TO AVOID:** Heat. These solutions are stable at normal temperatures and pressures.

## 11. Toxicological Information

See section 3.

## 12. Ecological Information

These solutions do not contain any Class I or Class II ozone-depleting chemicals. None of the solution components is listed as a marine pollutant by DOT.

## 13. Disposal Considerations

**WASTE DISPOSAL METHOD:** Dispose of this product in an environmentally acceptable manner in full compliance with federal, state, and local regulations. Do not pour down drains, into sewers, or otherwise release into the environment. Place into lab packs for pickup by a licensed hazardous waste disposal service or use other authorized means. See section 6 for disposal following spills.

## 14. Transport Information

**DOT/IMO SHIPPING NAME:** Not regulated

<b>HAZARD CLASS:</b> Not applicable	<b>IDENTIFICATION NUMBER:</b> Not applicable	<b>PRODUCT RQ:</b> 1000 lb (454 gm) ferric chloride; 5000 lb (2268 kg), hydrochloric acid
<b>SHIPPING LABEL(s):</b> Not required		
<b>PLACARD (when required):</b> Not required		

## 15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

### U.S. FEDERAL REGULATIONS:

#### EPA (ENVIRONMENTAL PROTECTION AGENCY)

**CERCLA:** COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (40 CFR Parts 117 and 302):

**Reportable Quantity (RQ):** 1000 lb (454 gm) ferric chloride; 5000 lb (2268 kg), hydrochloric acid

#### SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

**SECTIONS 302/304:** Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

**Threshold Planning Quantity (TPQ):** None

**EHS RQ (40 CFR 355):** None

**SECTIONS 311/312:** Require submission of MSDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

**IMMEDIATE:** Yes

**DELAYED:** Yes

**PRESSURE:** No

**REACTIVITY:** No

**FIRE:** No

**SECTION 313:** Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

None of the components requires reporting under Section 313.

**40 CFR 68: RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION:** Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

None of the components is present in concentrations subject to this regulation.

**TSCA: TOXIC SUBSTANCES CONTROL ACT:** The components of this solution are listed on the TSCA inventory.

**OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:**

**29 CFR 1910.119: PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS:** Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

5000 lb (2268 kg), hydrochloric acid

#### STATE REGULATIONS:

**CALIFORNIA:** None of the components of this solution is listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).

**PENNSYLVANIA:** The components of this solution are subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

### 16. Other Information

Be sure to read and understand all labels and instructions supplied with all containers of this product.

**OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:** *Toxic, corrosive, irritating liquid and vapor.* Do not get liquid or vapor in eyes, on skin, or on clothing. Have safety showers and eyewash fountains immediately available to exposed workers. Wash hands thoroughly after handling. *Store and use with adequate ventilation at all times.* (See section 8.) Keep container closed when not in use, even when empty.

**NOTE:** *Prior to using any plastics, confirm their compatibility with the components of this material.*

**MIXTURES:** When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Remember, solids, liquids, and vapors have properties that can cause serious injury or death.

#### HAZARD RATING SYSTEMS:

##### NFPA RATINGS:

HEALTH	= 2
FLAMMABILITY	= 0
INSTABILITY	= 0
SPECIAL	= None

##### HMIS RATINGS:

HEALTH	= 2
FLAMMABILITY	= 0
PHYSICAL HAZARD	= 0

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

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The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

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