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MATERIAL SAFETY DATA SHEET
(For Printing Ink and Related Materials)

Date: April 21, 2004

SECTION I

MANUFACTURED BY: Graphic Chemical & Ink Company
P.O. Box 7027
728 North Yale
Villa Park, IL 60181

EMERGENCY PHONE: 800-535-5053

PRODUCT CLASS: Ferric Chloride C.A.S. 7705-08-0
TRADE NAME: Copper Etching Solution
MANUFACTURERS CODE: 13660,13662,13664

SECTION II - HAZARDOUS INGREDIENTS

37-45% Ferric Chloride
<0.9% Hydrochloric Acid
<0.5% Ferrous Chloride

SECTION III - PHYSICAL DATA

Boiling Range: 230 Degrees F Type of Odor: Slight odor of iron
Vapor Density: Negligible Evaporation Rate: Less than Butyl
Acetate
Liquid Density: Percent Volatile Wt:
Appearance: Reddish Brown Liquid

SECTION IV - FIRE & EXPLOSION DATA

Flash Point Category: Not flammable
Lowest Flash Point: N/A
LEL: N/A

Extinguishing Media: CO2, Dry Chemical, sand, water

Special Fire Fighting Procedure: Wear self-contained breathing apparatus and full protective clothing as appropriate for surrounding fire. Cool exterior of storage tanks.

Unusual Fire & Explosion Hazards: None

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Threshold Limit Value: 900 mg/kg

Effects of Overexposure: Contact with liquid, mist or vapor can cause immediate irritation or corrosive burns to all human tissue. Severity of the burn is generally determined by the concentration of the solution and duration of exposure. Contact with eyes may cause irritation and tearing and eye tissue discoloration and may result in permanent visual loss unless removed quickly by thorough irrigation with water. Inhalation of concentrated vapor or mist may cause irritation of respiratory tract. Ingestion may cause liver and kidney damage and may be fatal.

Emergency First Aid:

Flush eyes or skin immediately with water for at least 15 minutes. Wash clothing before reuse. If ingested, drink copious amounts of water and do not induce vomiting. If inhaled, remove to fresh air. Always seek medical attention.

SECTION VI - REACTIVITY DATA

Product Stability: Stable

Conditions to Avoid: Material is stable when properly handled. Material is acidic and corrodes most metals. Avoid contact with strong alkalis and oxidizers.

SECTION VII - SPILL OR LEAK PROCEDURES

Procedure when material is spilled or released:

Utilize full protective clothing including boots. Contain spill to prevent contamination of water way; neutralize with lime or soda ash. Flush with water in accordance with applicable regulations to waste treatment system.

Waste disposal method:

Dispose of spilled, neutralized, or waste product, contaminated soil and other contaminated materials in accordance with all local, state and federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Open window or local exhaust.

Protective Equipment (Respiratory, Eye, Etc.):

Safety glasses; respirator; rubber gloves.

SECTION IX - SPECIAL PRECAUTIONS

Storage & Handling: Store in cool place away from high heat, sparks, open flame or oxidizing agents.

PRODUCT CLASS:

TRADE NAME:

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Ferric Chloride

Copper Etching Solution

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C.A.S. 7705-08-0

SECTION X - DISCLOSURE

Disclosure Information:

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained