

# Material Safety Data Sheet

GC THORSEN  
1801 MORGAN STREET  
ROCKFORD, IL  
(815)-968-9661

Product: 22-238  
Issue: 6  
Date: 07/24/96  
MSDS No: 0133  
Page No: 1

## SECTION I - MATERIAL IDENTIFICATION

Product Name: PC BOARD ETCHING SOLUTION  
Chemical Family: FERRIC CHLORIDE

Contact: CHEMTREC  
Phone: 1-800-424-9300

## SECTION II - INGREDIENTS

| CAS Number | Chemical Name            | %WT | Exposure Limits (PPM) |
|------------|--------------------------|-----|-----------------------|
| 7705-08-0  | FERRIC CHLORIDE SOLUTION | 39  | N/E                   |
| 7647-01-0  | (42F BAUME) + HCL ACID   | 61  | 5 TLV-PEL, N/E STEL   |

Comments:  
NOT CARCINOGENIC

## SECTION III - PHYSICAL DATA

|                    |         |                       |                   |
|--------------------|---------|-----------------------|-------------------|
| Boiling Point:     | 90 C    | Specific Gravity:     | 1.43              |
| Vapor Pressure:    | 50 mmHg | % Volatile by Volume: | 60                |
| Vapor Density:     | 0.9     | Evaporation Rate:     | <1                |
| Solubility in H2O: | VERY    | Form:                 | X Liquid<br>Solid |
|                    |         |                       | Paste<br>Gas      |

Appearance and Odor:  
DARK BROWN LIQUID - HYDROCHLORIC ACID ODOR

## SECTION IV - FIRE & EXPLOSION HAZARD DATA

|                      |            |                  |         |           |          |
|----------------------|------------|------------------|---------|-----------|----------|
| Flash Point:         | Open Cup   | Flammable Limits | Lower   | Upper     |          |
| N/A                  | Closed Cup | (% In Air)       | N/A     | N/A       |          |
| Extinguishing Media: | CO2        | H2O              | H2O Fog | Chem Foam | Dry Chem |

Special Fire Fighting Procedures:  
GENERATES HYDROGEN GAS WHEN IT COMES IN CONTACT WITH METALS

Unusual Fire & Explosion Hazards:  
HYDROCHLORIC ACID FUMES WILL RESULT IF EXPOSED TO FLAME OR HIGH HEAT

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## FIRE & EXPLOSION HAZARD DATA - CONTINUED

| HMIS/NFPA<br>RATINGS | Health | Flammability | Reactivity |
|----------------------|--------|--------------|------------|
|                      | 3      | 0            | 1          |

## SECTION V - HEALTH HAZARD INFORMATION

TLV: 5 PPM PEL: 5 PPM Other: N/E

### Effects of Overexposure:

IRRITATION OF THE MOUTH, THROAT, AND SKIN, RHINITIS, BRONCHITIS, LARYNGITIS, PNEUMONIA, HEADACHE, PALPITATION, NAUSEA, CHILLS, FEVER, SHOC, NEPHRITIS

| Primary Routes<br>of entry: | X Inhalation  | X Skin Contact |
|-----------------------------|---------------|----------------|
|                             | X Eye Contact | Ingestion      |

### Emergency/First Aid Procedures:

#### Eyes:

FLUSH WITH WATER FOR AT LEAST 15 MINUTES - CONSULT PHYSICIAN

#### Skin:

FLUSH WITH WATER - CONSULT PHYSICIAN IF IRRITATED

#### Inhalation:

FRESH AIR, OXYGEN - CONSULT PHYSICIAN

#### Ingestion:

GASTRIC LAVAGE - (5% SODIUM CARBONATE) - CONSULT PHYSICIAN

## SECTION VI - REACTIVITY DATA

| X Stable | Conditions                                      |
|----------|-------------------------------------------------|
| Unstable | to avoid: HIGH TEMPERATURES (PRODUCE HCL FUMES) |

Incompatibility: ALKALINE METALS, OXIDIZERS  
(Materials to Avoid)

### Hazardous Decomposition Products:

CHLORINE, HYDROGEN

| Hazardous Polymerization: | May Occur | X Will not Occur |
|---------------------------|-----------|------------------|
|---------------------------|-----------|------------------|

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### SECTION VII - SPILL OR LEAK PROCEDURES

**Procedures:**

NEUTRALIZE WITH SODIUM CARBONATE, LIME, OR SODIUM BICARBONATE

**Waste Disposal:**

MAY BE FLUSHED INTO SEWERS WITH A LARGE AMOUNT OF WATER

### SECTION VIII - SPECIAL PROTECTION INFORMATION

**Respiratory:**

SCBA FOR LARGE SPILLS

**Eyeware:**

CHEMICAL GOGGLES

**Ventilation:** X Local Exhaust

Mechanical AS REQUIRED TO MEET TLV'S

**Clothing/Gloves:**

BUTYL GLOVES AND APRON IF NECESSARY TO AVOID SKIN CONTACT

### SECTION IX - SPECIAL PRECAUTIONS

**Handling & Storing:**

STORE IN A COOL, WELL-VENTILATED AREA.

**Other:**

THIS MATERIAL IS HIGHLY CORROSIVE TO STEEL AND MOST METALS.

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Prepared by: M. WINSEL

Date: 12/09/98