Ferric Chloride Etching Solution

Part Numbers: 600-015 - 5 litres
600-016 - 25 litres

Description
Ferric Chloride pellets for producing a solution for etching copper printed circuit boards and other metals.

Preparation
BEFORE HANDLING WEAR PROTECTIVE CLOTHING AND READ THE HEALTH AND SAFETY INFORMATION ON THE REAR OF THIS SHEET.

For stainless steel, nickel and high nickel alloy use as supplied. For copper, brass and bronze use 30% water.

Usage
Use between 35°C and 55°C. For safe and efficient etching always use at the optimum temperature of approximately 45°C in a Mega Temperature controlled etching tank.

Health and Safety
Always wear protective clothing. Full Health and Safety details are on the rear of this instruction sheet. A report by an occupational hygienist concluded that under the test conditions, NO LOCAL VENTILATION IS REQUIRED using this etchant in Mega’s PCB processing tanks. A copy of this report is available upon request.

Ferric Stain Remover
Stains left from drips or splashes of the etching solution can be removed with Mega's 600-039 Ferric Chloride Cleaner (1 Kg).

Associated Products
A range of associated products for use with this etchant are featured in our free product catalogue. Please telephone us for your free copy.

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THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BELIEVED TO BE ACCURATE - HOWEVER NO GUARANTEE OR WARRANTY EXPRESSED OR IMPLIED IS GIVEN

SECTION 1 PRODUCT IDENTIFICATION AND MANUFACTURE
NAME: FERRIC CHLORIDE HEXAHYDRATE SOLUTION
PART NO: 600-015 (5 Litres) 600-016 (25 Litres)

MANUFACTURER’S/SUPPLIERS NAME, REGISTERED ADDRESS AND EMERGENCY TEL NO:
MEGA ELECTRONICS LTD., THE GRIP INDUSTRIAL ESTATE, LINTON, CAMBRIDGE. ENGLAND, CB1 6NR.
TELEPHONE: +0044 01223 893900

ORGANISATIONS NAME & ADDRESS AT WHICH MANUFACTURED
KEPETS GMBH.
NORDSTRASSE 24
D-35641 SCHÖFFENGRUND
LAUPDORF.
GERMANY.
TÉL: 0049 064 45/50 23-4

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS
COMPONENT %BY WT CAS & EEC Nos.: HAZARD PHRASE NOS.
FERRIC HEXAHYDRATE
100 N/A Xn R22, R36/38

SECTION 3 HAZARDS IDENTIFICATION
MAY BE CORROSIVE TO MUCOUS MEMBRANES, EYES AND SKIN. ITS EFFECTS ARE SIMILAR TO THOSE OF ANY CAUSTIC SUBSTANCE. THE ESTIMATED ONE TIME LETHAL DOSE FOR 70 kg MAN IS 30g.

SECTION 4 FIRST AID MEASURES
INHALATION:
MOVE TO FRESH AIR AND KEEP AT REST. IF RECOVERY IS NOT RAPID, SEEK MEDICAL ATTENTION.

SKIN CONTACT:
REMOVE CONTAMINATED CLOTHING. WASH AFFECTED AREA WITH SOAP AND WATER. IF IRRITATION OCCURS AND PERSISTS, SEEK MEDICAL ATTENTION.

EYE CONTACT:
FLUSH WITH WATER FOR 15 MINUTES. SEEK MEDICAL ATTENTION

INGESSION:
RINSE MOUTH OUT WITH WATER. DO NOT INDUCE VOMITING. SEEK MEDICAL ATTENTION.

MEDICAL NOTES: N/A

SECTION 5 FIRE FIGHTING MEASURES
EXTINGUISHING MEDIA
NON FLAMMABLE, SO NO LIMITATIONS

COMBUSTION PRODUCTS
N/A

SECTION 6 ACCIDENTAL RELEASE MEASURES
PERSONAL PROTECTION
REFER TO SECTION & PERSONAL PROTECTION ENVIRONMENTAL PRECAUTIONS . AVOID ENTRY INTO DRAINS & WATERWAYS.
WORKPLACE PRECAUTIONS N/A
METHODS FOR CLEARING UP: SWEEP AND GATHER PRODUCT; AVOID GENERATION OF DUST.

SECTION 7 HANDLING AND STORAGE
HANDLING PRECAUTIONS
PREFERABLY HANDLE IN CONFINED SPACES. IF USING LARGE QUANTITIES, USE NON CORROSIVE EQUIPMENT.

STORAGE INCLUDING ANY SPECIAL REQUIREMENTS (TEMPERATURE, VENTILATION, ETC) STORE IN COOL, DRY PLACE AWAY FROM CHILDREN AND FOODSTUFF. KEEP IN WELL VENTILATED AREA, AWAY FROM REACTIVE SUBSTANCES.

SECTION 8 EXPOSURE CONTROL/PERSONAL PROTECTION
ENGINEERING CONTROLS/ VENTILATION
NORMAL GOOD ROOM VENTILATION SHOULD BE SUFFICIENT.

RESPIRATORY PROTECTION
N/A

EYE PROTECTION
RECOMMENDED SPLASHPROOF GOGGLES

HAND PROTECTION
RECOMMENDED IMPERVIOUS GLOVES e.g. NITRILE.

SKIN PROTECTION
RECOMMENDED IN FORM OF COVERALLS.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES
APPEARANCE: ODOURLESS LIQUID
ODOUR: NONE
ACIDITY/ALKALINITY pH: 2.0 (Molar aqueous solution)

BOILING POINT 111ºC

FLASH POINT ºC (Open/Closed Cup): N.A. AUTOIGNITION TEMP ºC: N.A.

THERMAL DECOMPOSITION TEMP ºC: WHEN STRONGLY HEATED WILL LIBERATE HYDROGEN CHLORIDE

OXIDISING PROPERTIES:
EXPLOSIVE PROPERTIES: NON FLAMMABLE

EXPLOSIVE LIMITS AT 25ºC (% VOL IN AIR)
LOWER: UPER:
RELATIVE DENSITY: 1.45g/ml SOLID CONTENT %

SOLUBILITY IN WATER: COMPLETELY IN WATER INSOLUBILITY IN ALCOHOL, ETHER AND ACETONE.

VOLATILE CONTENT: AVOID CONTACT WITH STRONG ACIDS, ALKALIS, OXIDISERS

VAPOUR PRESSURE mmHg at 20ºC RELATIVE VAPOUR DENSITY (air = 1):
( of principle component and name):

EVAPORATION RATE CONDUCTIVITY:

SECTION 10 STABILITY AND REACTIVITY PROPERTIES
CONDITIONS TO AVOID: NONE

MATERIALS TO AVOID: SOLUTIONS OF FERRIC CHLORIDE ACT AS AN ACID AND ARE POWERFUL OXIDISING AGENTS, DISSOLVING THE MAJORITY OF METALS (Cu, Ni, Sn, Pb, Mn, Fe, Co, etc) HAZARDOUS DECOMPOSITION PRODUCTS: INCLUDE DI AND HCI HAZARDOUS POLYMISATION WILL NOT OCCUR

SECTION 11 TOXICOLOGICAL INFORMATION

EFFECT OF EYE CONTACT:
IRRITATION, TEARING, REDNESS, RISK OF BURNS.
EFFECT OF SKIN CONTACT:
IRRITATION WHEN IN CONTACT WITH DAMP SKIN. RISK OF BURNS, RISK OF DERMATITIS AFTER REPEATED CONTACT. PERSISTENT PIGMENTATION OF SKIN ON REPEATED CONTACT.

EFFECT OF INHALATION:
IRRITATION OF NOSE AND THROAT. COUGHING AND DIFFICULTY BREATHING AFTER PROLONGED OR REPEATED EXPOSURE. ULCERATION OF THE NOSE AND BROWN STAINING OF THE TEETH.

EFFECT OF INGESTION:
LOW PROBABILITY OF RISK DUE TO ACID TASTE. IRRITATION AND BURNS TO MOUTH, THROAT AND STOMACH. NAUSEA, VOMITING, STOMACH CRAMPS SHOCK.

SECTION 12 ECOLOGICAL INFORMATION

Possible environmental effects and behaviour/ODP/aquatic toxicity.
EC50 (DAPHNIA): 7.3mg / l (iron) LC50 (FISH): 26mg / l (iron) ODP: N.A. - No other data available.

SECTION 13 DISPOSAL CONSIDERATIONS
Safe disposal of product, its residues and packaging materials:
In accordance with local regulations via licensed contractor.
May be neutralised to neutral pH.
Dispose in a controlled landfill site.

SECTION 14 TRANSPORT INFORMATION
Not restricted

SECTION 15 REGULATORY INFORMATION
INDICATION OF DANGER: BLACK ST. ANDREW'S CROSS, HARMFUL CONTAINS:
FERRIC CHLORIDE HEXAHYDRATE

RISK PHRASE Nos. & WORDS:
R22 Harmful if swallowed
R36/38 Irritating to eyes and skin.

SAFETY PHRASE Nos. & WORDS:
S2 Keep out of reach of children
S26 In case of contact with eyes / rinse immediately with plenty of water and seek medical advice
S37/39 Wear suitable protective clothing, gloves and eye / face protection

OTHER INFORMATION
RECOMMENDED USES AND RESTRICTIONS: Use only as directed.