

FERRIC CHLORIDE ETCHANT (PELLETS)

Part Nos.: 600-011 - 250 grams
600-012 - 500 grams
600-013 - 2.5 kilos
600-017 - Etch in Bag

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.

Each 500g will make 1 litre of etching solution. Add hot, 35°C water (50-60% of the total liquid required) to a suitable container. Slowly stir in the pellets until dissolved. Add the remaining hot water to make up the total volume of etching solution, 250g makes ½ litre, 500g makes 1 litre and 2.5kg makes 5 litres. Finally transfer the liquid to a suitable etching tank such as Mega's PA series etching tanks.

Usage

For safe and efficient etching always use at approximately 45°C in a Mega temperature controlled Bubble Etch 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.

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



Mega Electronics Limited
Mega House, Grip Industrial Estate,
Linton, Cambridge, CB1 6NR. England.
Telephone: +44 01223 893900
Fax: +44 01223 893894
email: sales@megauk.com
Web: www.megauk.com

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 CRYSTALS.

PART NO: 600-011 (250g)
600-012 (500g) 600-017 Etch in Bag.
600-013 (2.5kg)

MANUFACTURER'S/SUPPLIERS NAME, REGISTERED ADDRESS AND EMERGENCY TEL NO:

MEGA ELECTRONICS LTD., TELEPHONE: +0044 01223 893900
THE GRIP INDUSTRIAL ESTATE,
LINTON, CAMBRIDGE.
ENGLAND, CB1 6NR.

ORGANISATIONS NAME & ADDRESS AT WHICH MANUFACTURED

KEPETS GMBH. TEL: 0049 6445 5810
NORDSTRASSE 24
D-35641 SCHÖFFENGRUND
LAUFDORF.
GERMANY.

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	%BY WT	CAS & EEC Nos:	HAZARD	R
PHRASE NOS:				
FERRIC	100	N/A	Xn	Irritating to eyes
CHLORIDE				& skin.
HEXAHYDRATE				

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

INGESTION:
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

FIRE/EXPLOSION SCENARIOS
DECOMPOSES TO RELEASE Cl AND HCl
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS
SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN.

SECTION 6 ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION
REFER TO SECTION 8; 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 PLASTIC CONTAINERS. 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: CRYSTALS **COLOUR:** YELLOW / BROWN

ODOUR: NONE **ACIDITY/ALKALINITY pH:** 2.0
(Molar aqueous solution)

BOILING POINT Im1-°C:280-285 (1013mbar)
MELTING POINT °C: 0-37

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

THERMAL DECOMPOSITION TEMP °C: 0-160
OXIDISING PROPERTIES: STRONG OXIDISER

EXPLOSIVE PROPERTIES: NON FLAMMABLE
EXPLOSIVE LIMITS AT 25°C (% VOL IN AIR)

LOWER: **UPPER:**

RELATIVE DENSITY: 1.66 **SOLID CONTENT** %:

SOLUBILITY IN WATER: 920g /L at 20°C
INSOLUBILITY IN ALCOHOL, ETHER AND ACETONE.

VOLATILE CONTENT

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

EVAPORATION RATE **CONDUCTIVITY:**
(n-butyl acetate = 1):

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 HCl

HAZARDOUS POLYMERISATION 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 ACRID TASTE IRRITATION AND BURNS TO MOUTH, THROAT AND STOMACH. NAUSEA, VOMITING, STOMACH CRAMPS AND DIARRHOEA. RISK OF SHOCK.
LD50 (ORAL HUMAN): 30g / 70kg (est.)
LD50 (ORAL RAT): 900mg / kg.
LD50 (ORAL MOUSE): 440mg / kg.

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.
See also Sections 7 & 8 for handling precautions and personal protection where applicable.

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:
36/39 Irritating to eyes and skin.

SAFETY PHRASE NOs & WORDS:
S26 In case of contact with eyes / rinse immediately with plenty of water and seek medical advice
S26/37/39 Wear suitable protective clothing, gloves and eye / face protection

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