

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



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

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
LAUFDORF.
GERMANY.
TEL: 0049 064 45/50 23-4

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	%BY WT	CAS & EEC Nos.:	HAZARD	PHRASE NOS:
FERRIC CHLORIDE 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

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 COL 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

COLOUR: DEEP AMBER
ACIDITY/ALKALINITY pH: 2.0 (Molar aqueous solution)

BOILING POINT 111°C

MELTING POINT °C:

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

AUTOIGNITION TEMP °C: N.A.

THERMAL DECOMPOSITION TEMP °C : WHEN STRONGLY HEATED WILL LIBERATE HYDROGEN CHLORIDE

OXIDISING PROPERTIES:

EXPLOSIVE PROPERTIES: NON FLAMMABLE

EXPLOSIVE LIMITS AT 25°C (% VOL IN AIR)

LOWER: **UPPER:**

RELATIVE DENSITY: 1.45g/ml

SOLID CONTENT %:

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

INSOLUBILITY IN

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

VAPOUR PRESSURE mmHg at 20°C

DENSITY (air = 1):

(of principle component and name):

RELATIVE VAPOUR

EVAPORATION RATE

(n-butyl acetate = 1):

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 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 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:

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.