

**Material Safety Data Sheet**

According to 91/155 EC

Printing date 16.07.2003

Reviewed on 16.07.2003

**1 Identification of the substance/preparation and of the company/undertaking****Product details****Trade name: 3350**

Application of the substance / the preparation Soldering flux

**Manufacturer/Supplier:**Kester  
515 E. Touhy Ave.  
Des Plaines, IL 60018Tel.(847) 297-1600  
Fax.(847) 390-9338**Further information obtainable from:**

MSDS Coordinator:

Tel. (847) 699-5755

**Information in case of emergency:**

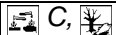


CHEMTREC 24-Hour Emergency Response Telephone Number:

(800) 424-9300

CHEMTREC 24-Hour Emergency Response Telephone Number (Outside US and Canada):

(703) 527-3887

**2 Composition/information on ingredients****Chemical characterization****Description:** Mixture of substances listed below with nonhazardous additions.**Dangerous components:**

CAS: 7646-85-7 EINECS: 231-592-0	zinc chloride	 C, N; R 34-50/53	25-50%
CAS: 7647-01-0 EINECS: 231-595-7	hydrogen chloride	 C; R 34-37	10-25%
CAS: 12125-02-9 EINECS: 235-186-4	ammonium chloride	 Xn; R 22-36	≤ 2.5%

**3 Hazards identification****Hazard description:**C Corrosive  
N Dangerous for the environment**Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 34 Causes burns.

R 37 Irritating to respiratory system.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**4 First-aid measures****General information:** Immediately remove any clothing soiled by the product.**After inhalation:** Supply fresh air; consult doctor in case of complaints.**After skin contact:** Immediately wash with water and soap and rinse thoroughly.

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**After eye contact:** *Rinse opened eye for several minutes under running water. Then consult a doctor.*

**After swallowing:** *Drink plenty of water and provide fresh air. Call for a doctor immediately.*

## 5 Fire-fighting measures

**Suitable extinguishing agents:**

*CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.*

**Special hazards caused by the substance, its products of combustion or resulting gases:**

*In case of fire, the following can be released:*

*Hydrogen chloride (HCl)*

*Zinc oxide*

**Protective equipment:** *Wear self-contained respiratory protective device.*

## 6 Accidental release measures

**Person-related safety precautions:**

*Ensure adequate ventilation*

*Wear protective equipment. Keep unprotected persons away.*

**Measures for environmental protection:** *Do not allow product to reach sewage system or any water course.*

**Measures for cleaning/collecting:**

*Use neutralizing agent.*

*Absorb with clay, diatomaceous earth, dry sand, or other inert material. Do not use combustible materials such as sawdust. Place in a chemical waste container. Flush residual with water.*

## 7 Handling and storage

**Handling:**

**Information for safe handling:**

*Ensure good ventilation/exhaustion at the workplace.*

*Open and handle receptacle with care.*

**Information about fire - and explosion protection:** *Keep respiratory protective device available.*

**Storage:**

**Requirements to be met by storerooms and receptacles:** *No special requirements.*

**Information about storage in one common storage facility:** *Not required.*

**Further information about storage conditions:**

*Keep container tightly sealed.*

*Store in cool, dry conditions in well sealed receptacles.*

## 8 Exposure controls/personal protection

**Additional information about design of technical facilities:** *No further data; see item 7.*

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**Ingredients with limit values that require monitoring at the workplace:****7646-85-7 zinc chloride**

OES	Short-term value: 2 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup> fume
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**7647-01-0 hydrogen chloride**

OES	Short-term value: 8 mg/m <sup>3</sup> , 5 ppm Long-term value: 2 mg/m <sup>3</sup> , 1 ppm gas and aerosol mists; ILV
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**12125-02-9 ammonium chloride**

OES	Short-term value: 20 mg/m <sup>3</sup> Long-term value: 10 mg/m <sup>3</sup>
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**Additional information:**

PEL = Permissible Exposure Limit (OSHA)

REL = Recommended Exposure Limit (NIOSH)

TLV = Threshold Limit Value (ACGIH)

OSHA = Occupational Safety and Health Administration

ACGIH = American Conference of Governmental Industrial Hygienists

NIOSH = National Institute for Occupational Safety and Health

**Personal protective equipment:****General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

**Respiratory protection:**

When ventilation is not sufficient to remove fumes from the breathing zone, a safety approved respirator or self-contained breathing apparatus should be worn.

**Protection of hands:**

Protective gloves

Material of gloves

Nitrile rubber, NBR

Natural rubber, NR

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:**

Tightly sealed goggles

Safety glasses

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**9 Physical and chemical properties****General Information**

**Form:** Liquid  
**Colour:** Light yellow  
**Odour:** Mild

**Change in condition**

**Melting point/Melting range:** Undetermined.  
**Boiling point/Boiling range:** 121°C

**Flash point:** Not applicable.

**Danger of explosion:** Product does not present an explosion hazard.

**Density at 20°C:** 1.524 g/cm<sup>3</sup>

**Solubility in / Miscibility with water:** Fully miscible.

**pH-value at 20°C:** < 1.0

**10 Stability and reactivity**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Materials to be avoided:** Strong acids, strong oxidizers.

**Dangerous reactions** No dangerous reactions known.

**Dangerous decomposition products:**

Hydrogen chloride (HCl)  
 Zinc oxide

**11 Toxicological information****Acute toxicity:**

**LD/LC50 values relevant for classification:**

**7646-85-7 zinc chloride**

Oral	LD50	350 mg/kg (rat)
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**Primary irritant effect:**

on the skin: Caustic effect on skin and mucous membranes.

on the eye: Strong irritant with the danger of severe eye injury.

**Sensitization:** No sensitizing effects known.

**Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Corrosive  
 Irritant

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Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

**12 Ecological information****General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Very toxic for aquatic organisms

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

**13 Disposal considerations****Product:****Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

**European waste catalogue**

16 10 01	aqueous liquid wastes containing dangerous substances
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**Uncleaned packaging:**

**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information****Land transport ADR/RID (cross-border)**

**ADR/RID class:** 8 Corrosive substances.

**Danger code (Kemler):** 80

**UN-Number:** 3264

**Packaging group:** II

**Hazard label:** 8

**Description of goods:** 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, ZINC CHLORIDE)

**Maritime transport IMDG:**

**IMDG Class:** 8

**UN Number:** 3264

**Label:** 8

**Packaging group:** II

**EMS Number:** F-A,S-B

**Marine pollutant:** No

**Proper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, ZINC CHLORIDE)

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 8

**UN/ID Number:** 3264

**Label:** 8

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**Packaging group:** II**Proper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, ZINC CHLORIDE)**15 Regulatory information****Code letter and hazard designation of product:**

C Corrosive  
N Dangerous for the environment

**Hazard-determining components of labelling:**

zinc chloride

hydrogen chloride

**Risk phrases:**

34 Causes burns.

37 Irritating to respiratory system.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

1/2 Keep locked up and out of the reach of children.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**National regulations:****Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.**16 Other information**

The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.

**Relevant R-phrases**

22 Harmful if swallowed.

34 Causes burns.

36 Irritating to eyes.

37 Irritating to respiratory system.

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*50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.***Department issuing MSDS:** *Product Safety***Contact:** *Heather Holich, MSDS Coordinator**Tel. (847)699-5755*

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