

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 10/06/2017

Version number 5

Reviewed on 10/06/2017

1 Identification

Trade name: 715 Soldering Flux**Relevant identified uses of the substance or mixture and uses advised against**Soldering Flux
Professional use of Solder**Application of the substance / the preparation:** Soldering flux**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**Kester Inc.
800 West Thorndale Avenue
Itasca, IL 60143 USA
Tel (630) 616-4000
Tel International 00 1 630 616-4000ITW Specialty Materials (Suzhou) Co., Ltd.
Heng Qiao Road
Wujiang Economic Development Zone
Suzhou, Jiangsu 215200 China
Tel +86 512 82060808Kester GmbH
Ganghofer Strasse 45
D-82216 Gernlinden Germany
Tel +49 (0) 8142 4785 0**Information department:** Product Compliance: EHS_Kester@kester.com**Emergency telephone number:**CHEMTREC 24-Hour Emergency Response Telephone Number : (800) 424-9300
CHEMTREC 24-Hour Emergency Response (Outside US & Canada) Telephone Number : (703) 527-3887

2 Hazard(s) identification

Classification of the substance or mixture

Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



Acute Tox. 4 H302 Harmful if swallowed.

Aquatic Acute 3 H402 Harmful to aquatic life.

Label elements**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

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US

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Trade name: 715 Soldering Flux

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Hazard pictograms



GHS05 GHS07

Signal word Danger

Hazard-determining components of labeling:

zinc chloride
ammonium chloride

Hazard statements

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H402 Harmful to aquatic life.

Precautionary statements

P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



Health = 3
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 3
Fire = 0
Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Description: Mixture of the substances listed below with nonhazardous additions.

CAS No.	Description	% Range
CAS: 7646-85-7	zinc chloride	40-55%

⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318
⚠ Acute Tox. 4, H302
⚠ Aquatic Acute 3, H402

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CAS: 12125-02-9 ammonium chloride

⚠ Acute Tox. 4, H302; Eye Irrit. 2A, H319

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3-5%

4 First-aid measures

Description of first aid measures

General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Follow general first aid procedures.

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

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

After swallowing:

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

Seek immediate medical advice.

Information for doctor:

Most important symptoms and effects, both acute and delayed No further relevant information available.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

Hydrogen chloride (HCl)

Nitrogen oxides (NO_x)

In certain fire conditions, traces of other toxic gases cannot be excluded, e.g.:

In case of fire, the following can be released:

Zinc oxides

Advice for firefighters

Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions: Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up:

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

PAC-1:

CAS: 7646-85-7 zinc chloride

2 mg/m³

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CAS: 12125-02-9	ammonium chloride	20 mg/m3
CAS: 7647-01-0	Hydrochloric Acid	1.8 ppm

PAC-2:

CAS: 7646-85-7	zinc chloride	800 mg/m3
CAS: 12125-02-9	ammonium chloride	54 mg/m3
CAS: 7647-01-0	Hydrochloric Acid	22 ppm

PAC-3:

CAS: 7646-85-7	zinc chloride	4,800 mg/m3
CAS: 12125-02-9	ammonium chloride	330 mg/m3
CAS: 7647-01-0	Hydrochloric Acid	100 ppm

7 Handling and storage

Handling:

Precautions for safe handling

Store in cool, dry place in tightly closed receptacles.

Prevent formation of aerosols.

Information about protection against explosions and fires: No special measures required.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Store in a cool location.

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

Further information about storage conditions: Keep receptacle tightly sealed.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

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

Control parameters

Components with limit values that require monitoring at the workplace:

CAS: 7646-85-7 zinc chloride

PEL	Long-term value: 1 mg/m ³ Fume
REL	Short-term value: 2 mg/m ³ Long-term value: 1 mg/m ³
TLV	Short-term value: 2 mg/m ³ Long-term value: 1 mg/m ³ fume

CAS: 12125-02-9 ammonium chloride

REL	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³
TLV	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³

Additional information:

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PEL = Permissible Exposure Limit (OSHA)
TLV= Threshold Limit Value (ACGIH)
OSHA= Occupational Safety and Health Administration
ACGIH= American Conference of Governmental Industrial Hygienists

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.
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.

Breathing equipment:

When ventilation is not sufficient to remove fumes from the breathing zone, a safety approved respirator or self-contained breathing apparatus should be worn.
Not necessary if room is well-ventilated.
Use suitable respiratory protective device in case of insufficient ventilation.

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:



Safety glasses

Body protection:



Apron

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Color: Colorless to light yellow
Odor: Mild

pH-value at 20°C (68 °F): <1

Change in condition

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: 104°C (219.2 °F)

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Flash point: Not applicable.

Ignition temperature: 0°C (32 °F)

Auto igniting: Product is not selfigniting.

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

Explosion limits:

Lower: 0.0Vol %

Upper: 0.0Vol %

Vapor pressure at 20°C (68 °F): 23hPa (17.3 mm Hg)

Density at 20°C (68 °F): 1.51g/cm³ (12.6 lbs/gal)

Solubility in / Miscibility with Water: Fully miscible.

Solvent content:

Water: 55.1%

Solids content: 44.6%

10 Stability and reactivity

Reactivity No further relevant information available.

Chemical stability

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

Possibility of hazardous reactions No dangerous reactions known.

Conditions to avoid No further relevant information available.

Incompatible materials: Strong acids, strong oxidizers.

Hazardous decomposition products:

Hydrogen chloride (HCl)

Zinc oxides

11 Toxicological information

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:

CAS: 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: Irritating effect.

through ingestion: May be harmful if swallowed.

Sensitization: Sensitization possible through inhalation.

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful
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. (Contd. of page 6)

Carcinogenic categories

IARC (International Agency for Research on Cancer)

CAS: 7647-01-0 Hydrochloric Acid	3
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NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Ecotoxicological effects:

Remark: Very toxic for fish

Additional ecological information:

General notes:

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

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Also poisonous for fish and plankton in water bodies.

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.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

13 Disposal considerations

Waste treatment methods

Recommendation:

Disposal must be made according to official regulations.

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

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

UN-Number

DOT, ADR, IMDG, IATA

UN3264

UN proper shipping name

DOT

Corrosive liquid, acidic, inorganic, n.o.s. (Zinc chloride, Hydrochloric acid)

ADR

3264 Corrosive liquid, acidic, inorganic, n.o.s. (Zinc chloride, Hydrochloric acid)

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IMDG, IATA

Not regulated
CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ZINC CHLORIDE, HYDROCHLORIC ACID)

Transport hazard class(es)

DOT



Class Label

8 Corrosive substances
8

ADR, IMDG, IATA



Class Label

8 Corrosive substances
8

Packing group

DOT, IMDG, IATA

III

Marine pollutant:

No

Special precautions for user

Not applicable.

Danger code (Kemler):

80

EMS Number:

F-A,S-B

Segregation groups

Acids

Stowage Category

A

Stowage Code

SW2 Clear of living quarters.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

Transport/Additional information:

DOT

Quantity limitations

On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

ADR

Excepted quantities (EQ)

Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

IMDG

Limited quantities (LQ)

5L

Excepted quantities (EQ)

Maximum net quantity per inner packaging: 30 ml

UN "Model Regulation":

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ZINC CHLORIDE, HYDROCHLORIC ACID), 8, III

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

All ingredients are listed on the following Government Inventories:

China: Inventory of Existing Chemical Substances in China (IECSC)

Korea: Korea Existing Chemicals List (ECL)

Europe: European Inventory of Existing Commercial Chemical Substances (EINECS)

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Japan: Inventory of Existing and New Chemical Substances (ENCS)
 Philippines: Philippine Inventory of Chemicals and Chemical Substances (PICCS)
 USA: TSCA (Toxic Substances Control Act) TSCA Inventory of Chemical Substances

USA The following information relates to product regulation specific to the USA.

SARA (Superfund Amendments and Reauthorization Act)

Section 355 (extremely hazardous substances):

CAS: 7647-01-0	Hydrochloric Acid
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Section 313 (Specific toxic chemical listings):

CAS: 7646-85-7	zinc chloride
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CAS: 7647-01-0	Hydrochloric Acid
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California Proposition 65

Chemicals known to cause cancer:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

CAS: 7646-85-7	zinc chloride	D, I, II
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NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

CANADA:

Workplace Hazardous Materials Identification (WHMIS):

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR) and the Safety Data Sheet (SDS) contains all of the information required by the CPR.

GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



GHS05 GHS07

Signal word Danger

Hazard-determining components of labeling:

zinc chloride
 ammonium chloride

Hazard statements

H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H402 Harmful to aquatic life.

Precautionary statements

P264 Wash thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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.

Department issuing Safety Data Sheet (SDS): Product Compliance / EHS Department

Contact: EHS_Kester@kester.com

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3

* **Data compared to the previous version altered.**