

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product identifier

Product name: AMCO 4641

Other means of identification

Product code: 555

Recommended use of the chemical and restrictions on use

Recommended use: General Purpose Soft Soldering Flux

Details of the supplier of the safety data sheet

Manufacturer: Force Industries Division.
28 Industrial Blvd. Paoli, PA 19301.

Emergency Telephone number

For hazardous materials incidents only, call CHEMTREC Emergency Response Number:
1-800-424-9300.

For all other questions about this product, call Force Industries Division at 610-647-3575.

Revision Date: July 21, 2016

Supersedes: June 3, 2016

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute Toxicity 4 (Oral) H302

Skin Corrosion 1B H314

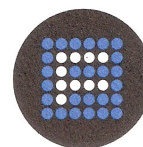
Specific target Organ toxicity single exposure 3 H335

Aquatic Acute 1 H400

Aquatic Chronic 1 H410

Hazard statement(s)

H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long-lasting effects



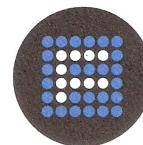
2.2 GHS Label elements, including precautionary statements

Emergency overview

Appearance:	White to Pale Yellow
Physical state:	Liquid
Odor:	none
Signal Word:	Danger

Precautionary statement(s)

P234	Keep only in original container
P260	Do not breathe dust/fumes/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312+P330 +P331	IF SWALLOWED: Call a POISON CENTER/ doctor and Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 P304+P340	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 P332+P313 P337+P313	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If skin irritation occurs: Get medical advice/attention. If eye irritation persists get medical advice/attention.
P362 P363	Take off contaminated clothing. Wash contaminated clothing before reuse.
P391 P402	Collect spillage. Store in a dry place
P403+P233 P405	Store in a well ventilated place. Keep container tightly closed. Store locked up.
P501	Dispose of contents/container to in accordance with local/regional/national/international regulation

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS –none.****SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS**

<u>Component</u>	<u>CAS No.</u>	<u>EINECS No.</u>	<u>Weight %</u>
Zinc Chloride	7646-85-7	231-592-0	50 - 70
Ammonium Chloride	12125-02-9	235-186-4	5 - 20
Hydrochloric acid	7647-01-0	231-595-7	5 - 15
Glycerin	56-81-5	200-289-5	0 - 5
Methanol	67-56-1	200-659-6	0 - 5

Others, if any, are non-hazardous and claimed as trade secret.

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move patient out of dangerous area.

EYES: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. Blindness can result.

SKIN: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If rash or burns develops consult a physician. Material is corrosive. Wash contaminated clothing before reuse and discard shoes.

INGESTION: If swallowed, do not induce vomiting. Give large quantities of water. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

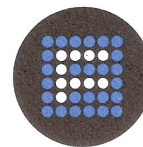
INHALATION: Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available



SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Hydrogen chloride gas, Zinc/zinc oxides. Dense smoke may be generated.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

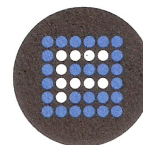
Wash thoroughly after handling to remove residue. Do not breathe fumes. Professionally wash contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Store Flux at ambient conditions, keep extremely dry and controlled conditions. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.



SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Components	OSHA PEL	ACGIH
Zinc Chloride	1 mg/m ³	1 mg/m ³ TWA
Ammonium Chloride	10.0 mg/m ³	10.0 mg/m ³ TLV
Hydrochloric acid	7 mg/m ³ Limits for air contaminants	7 mg/m ³ TLV
Glycerin	NA	10.0 mg/m ³ TLV
Methanol	200 mg/m ³ TLV	200 mg/m ³ TLV

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact:

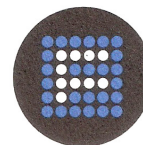
Material: Suitable protective clothing. Rubber boots. Rubber gloves. Rubber apron.

Body Protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN(EU).



Control of environmental exposure Prevent further leakage or spillage if safe to do so.
Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance (physical state, color, etc.)	Pale Yellow Liquid
Odor	Slight Acidic
pH	<1
initial boiling point and boiling range	~215 ° F @ 760 mm Hg
flash point	160° - 165° F
evaporation rate	<1
flammability (solid, gas)	Not Applicable
upper/lower flammability or explosive limits	None
vapor pressure	3.5
vapor density	<1
relative density	1.59 H ₂ O =1 @ 72° F
solubility(ies)	Appreciable

9.2 Other safety information

Percent volatiles by weight <20%

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

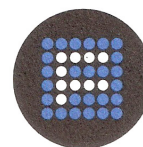
No data available

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

Other decomposition products - No data available In the event of fire: see section 5.



SECTION 11: TOXICOLOGICAL INFORMATION
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11.1 Component toxicity

Components	LC50/Inhalation	LC50/Dermal	LD50/Oral
Zinc Chloride Solution	No data available	No data available	500 mg/Kg/Rat
Ammonium chloride	No data available	No data available	1650 mg/kg/Rat
Hydrochloric acid	No data available	Corrosive to eyes (rabbit)	No data available
Glycerin	No data available	>10,000 mg/Kg/Rabbit	12,600 mg/Kg/Rat
Methanol	128.2 mg/Kg/Rat	17,100 mg/Kg/Rabbit	143 mg/Kg/Human

11.2 Effects of Acute Overexposure:

- a. Inhalation: No data available
- b. Eyes: No data available
- c. Skin Contact: No data available
- d. Ingestion: No data available

11.3 Primary Route of Exposure:

No data available

11.4 Effects of Chronic Exposure:

No data available

11.5 Target Organs:

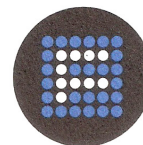
No data available

11.6 Reproductive Effects

No data available

11.7 Carcinogenicity:

No data available



SECTION 12: ECOLOGICAL INFORMATION

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Components	LC50/96hr/48hr/24hr	EC50/96/48hr/24hr	Bioaccumulation Concentration Factor	No Observable Effect Concentration/96hr/48hr/24hr
Zinc Oxide	1.1 mg/l mg/L (fish)	0.098 mg/L (water flea, 48hr)	No data available	No data available
Ammonium Chloride	209.00 mg/l	161 mg/L (water flea, 48hr)	No data available	No data available
Hydrochloric acid	282 mg/l mg/L (mosquito fish)	No data available	No data available	No data available
Glycerin	No data available	No data available	No data available	No data available
Methanol	NA	10,000 mg/L (water flea, 48hr)	Carp – 72d – 5 mg/l BCF=1.0	15,400 mg/l (Bluegill)

12.2 Persistence and degradability

No data available

12.3 Bio-accumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

No data available

SECTION 13: DISPOSAL CONSIDERATIONS

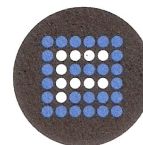
13.1 Waste treatment methods

Product

Hazardous Waste. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

**SECTION 14: TRANSPORT INFORMATION****UN Number:** 1760**UN Proper shipping name:** Corrosive Liquid NOS (Zinc Chloride Hydrochloric Acid,)**Transport Hazard class(es):** 8 - Class 8 - Corrosive material 49
CFR 173.136**Packing group, if applicable:** PGI**Marine pollutant (Yes/No):** Yes

Unless your shipments qualify for an exemption, you must mark the products with the marine pollutant mark and add the words "Marine Pollutant" to the product's basic description on your bill of lading.

Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises.

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SECTION 15: REGULATORY INFORMATIONCERCLA Reportable Quantities

The product contains Zinc Chloride - Reportable Quantity- 1000 lbs.

SARA Title III Section 311/312 Hazard Categories:

Acute Health Hazard
Chronic Health Hazard

SARA Title III 313 Reportable Substances

If listed below components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Zinc Chloride 7646-85-7
Zinc Compounds N982

Toxic Substance Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification Section 12 (b) of TSCA:

None listed

California Proposition 65

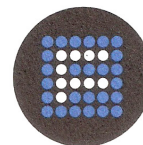
This product does not contain a chemical known in the State of California to cause cancer.

Chemical Inventory Status

Unless otherwise noted; this product is in compliance with the inventory listings of the countries shown below. For information listings for countries not shown, contact the Product Regulatory Department.

Canada - DSL (Domestic Substance List): All raw materials used in this product are listed on DSL

SAFETY DATA SHEET



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DIVISION**

USA - TSCA (TOXIC SUBSTANCE CONTROL ACT): All raw materials used in this product are listed on TSCA Inventory.

Europe - All raw materials used in this product are listed on EINECS Inventory.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment- Chronic Hazard, Category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H410	Very toxic to aquatic life
H400	Very toxic to aquatic life with long lasting effects

HMS:

Health: 3
Flammability: 0
Reactivity: 0

PREPARATION INFORMATION: Technical Service Department, Force Industries Division

DISCLAIMER: The data set forth in these sheets are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Force Industries makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereon. Force Industries warrants only that its products conform to their published specifications and no other express warranty is made with regards thereof. We do not guarantee favorable results, and we assume no liability in connection with the use of the products. They are intended for use by persons having technical skill and knowledge, at their own discretion and risk.