

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

Product identifier

Product name: AMCO 4986

Other means of identification

Product code: 693

Recommended use of the chemical and restrictions on use

Recommended use: Top flux for tin/lead alloys, Galvanizing 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: January 9, 2019

Supersedes: July 21, 2016

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

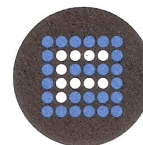
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute Toxicity Oral (Category 4), H302
Skin Corrosion (Category 1B), H314
Serious Eye Damage (Category 1), H314
Acute Aquatic Toxicity (Category 1), H400
Chronic Aquatic Toxicity (Category 1), H410

Hazard statement(s)

H302: Harmful if swallowed
H314: Causes severe skin burns and eye damage
H318: Causes serious eye damage
H400: Very toxic to aquatic life
H410: Very toxic to aquatic life with long-lasting effects

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2.2 GHS Label elements, including precautionary statements

Emergency overview

Appearance:	White granular powder
Physical state:	Solid
Odor:	None
Signal Word:	Danger

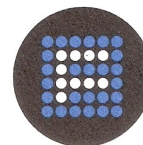


Precautionary statement(s)

P260: Do not breathe dust.
P264: Wash skin 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+ P312+P330 + P331: IF SWALLOWED: Immediately call a POISON CENTER or physician, rinse mouth and DO NOT induce vomiting.
P304+P340+P311: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Contact a physician.
P337+P313: If eye irritation persists: Get medical advice/attention.
P363: Wash contaminated clothing before reuse.
P391: Collect spillage.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

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	70-80%
Ammonium Chloride	12125-02-9	235-186-4	20-30%

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.

Eyes: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

Skin: Wash off with plenty of water. Consult a doctor if a rash or burn develops.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult 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

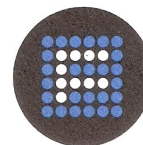
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SECTION 5: FIRE-FIGHTING MEASURES**5.1 Extinguishing media**

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



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

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. 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

Pick up and arrange disposal without creating dust. Sweep up and shovel. 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

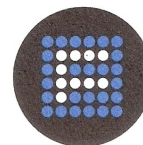
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed. Protect with nitrogen.

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 TWA
Zinc Chloride	1 mg/m ³
Ammonium Chloride	10 mg/m ³

8.2 Exposure controls**Appropriate engineering controls**

General industrial hygiene practice.

Personal protective equipment**Eye/face protection**

Face shield and safety glasses 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.

Body Protection

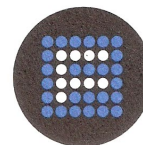
Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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

Physical state:	White granular powder
Odor:	None
Flash point:	N/E
Vapor pressure:	N/E
Vapor density:	N/E
Boiling Point:	N/E
Specific gravity:	2.37 (H ₂ O = 1 at 72°F)
Solubility in water:	Completely

9.2 Other safety information

None

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

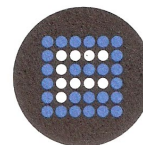
10.5 Incompatible materials

Strong acids, cyanides

10.6 Hazardous decomposition products

In the presence of water and heat, hydrochloric acid and zinc oxide

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Component toxicity

Components	LC50/Inhalation/4h/Rat	LC50/Dermal	LD50/Oral/Rat
Zinc Chloride	No data available	No data available	350 mg/kg
Ammonium Chloride	No data available	No data available	1,650 mg/kg

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:

Skin, eyes, and inhalation

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

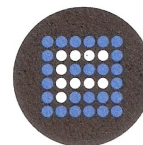
SECTION 12: ECOLOGICAL INFORMATION

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Components	LC50/96hr/48hr/24hr	EC50/96/48hr/24hr	Bioaccumulation Concentration Factor	No Observable Effect Concentration/96hr/48hr/24 hr
Zinc Chloride	0.4 - 2.2 mg/L (carp)	0.2 mg/L (flea)	No data available	No data available
Ammonium Chloride	209 mg/L (carp) 3.98 mg/L (rainbow trout)	No data available	No data available	No data available

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12.2 Persistence and degradability

No data available

12.3 Bio-accumulative potential

Pimephales promelas (fathead minnow) – 63 d
Bio-concentration factor (BCF): 21,000

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

DOT (US)

Proper shipping name: Zinc Chloride, Anhydrous mixture (Zinc Chloride, Ammonium Chloride)

UN number: 2331

Class: 8

Packing Group: III

ERG Guide Number: 154

Marine pollutant (Yes/No) YES

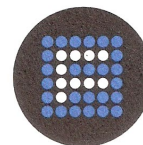
Unless your shipments qualify for an exemption, you must mark the products with the marine pollutant mark and add the words "Marine Pollutant" to the product's basic description on your bill of lading.

International Air Transportation (ICAO/IATA):

Proper shipping name: Zinc Chloride, Anhydrous mixture (Zinc Chloride, Ammonium Chloride)

UN number: 2331

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Class: 8
Packing Group: III
ERG Guide Number: 154
Marine Pollutant (Yes/No): Yes

International Maritime Organization (IMO/IMDG):

Proper shipping name: Zinc Chloride, Anhydrous
UN number: 2331
Class: 8
Packing Group: III
ERG Guide Number: 154
Marine Pollutant (Yes/No): Yes

SECTION 15: REGULATORY INFORMATION

International Inventories

USA (TSCA): Complies

Federal Regulations

SARA Title III 313 Reportable Substances

This product contains the following chemicals which are subject to the reporting requirements of the Act and of Title 40 of the Code of Federal Regulations, Part 372

Chemical	CAS #	% by Weight
Zinc Compounds	N982	29

SARA Title III Section 311/312 Hazard Categories:

Acute Health Hazard

CERCLA Section 103

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed on 40 CFR 302.4

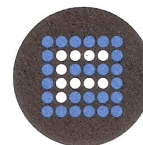
Zinc Chloride
Ammonium Chloride

Toxic Substance Control Act (TSCA)

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

None

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State Regulations (RTK)

Pennsylvania Right to Know Components

Component	CAS No.
Zinc Chloride	7646-85-7
Ammonium Chloride	12125-02-9

New Jersey Right to Know Components

Component	CAS No.
Zinc Chloride	7646-85-7
Ammonium Chloride	12125-02-9

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: OTHER INFORMATION

HMIS:

Health: 3

Flammability: 0

Reactivity: 1

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.