



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

Product identifier

Product name: AMCO 4800

Other means of identification

Product code: 608

Recommended use of the chemical and restrictions on use

Recommended use: Soldering of Copper, Battery Construction

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: September 13, 2016

Supersedes Date: July 10, 2006

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Skin Corrosion (Category 1A), H314

Serious Eye Damage (Category 1), H318

Specific target organ toxicity – single exposure (Category 3), Respiratory System

Acute Aquatic Toxicity (Category 2), H411

Hazard statement(s)

H302: Harmful if swallowed

H311: Toxic in contact with skin

H314: Causes severe skin burns and eye damage

H318: Causes serious eye damage

H335: May cause respiratory irritation

H401: Very toxic to aquatic life

2.2 GHS Label elements, including precautionary statements



Emergency overview

Appearance:	Water white
Physical state:	Liquid
Odor:	Organic
Signal Word:	Danger



Precautionary statement(s)

P261: Avoid breathing dust/fumes/gas/mist/vapors/spray
P264: Wash skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area
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.
P302+P352: IF ON SKIN: Wash with plenty of water
P303+P361+P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340+P311+P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Contact a physician
P321: Specific treatment see section 2.3
P332+P313: If skin irritation occurs: Get medical advice/attention
P337+P313: If eye irritation persists: Get medical advice/attention.
P362: Take off contaminated clothing
P363: Wash contaminated clothing before reuse.
P391: Collect spillage.
P403+P233: Store in a well ventilated place and keep container tightly closed.
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>
Hydrobromic Acid	10035-10-6	233-113-0	5-20%
ethylamine 70% (monoethylamine)	75-04-7	200-834-7	0-10%
Pentaerythritol	115-77-5	204-104-9	0-5%
Other Non-hazardous ingredients	Trade Secret	Trade Secret	60-90%

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 immediately. 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. Call a physician or Poison Control Center. Give large quantities of water, milk, or 5% sodium bicarbonate solution.

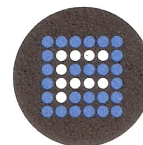
Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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

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

May release ammonia, hydrogen bromide gas and hydrobromic acid fumes. Toxic metal halide fumes produced. Dense smoke may be generated.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary. Full protective equipment required.

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 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. Prevent product from entering drains.

6.3 Methods and materials for containment and cleaning up

Contain spill, absorb, and dispose. Flush area to chemical sewer. Baking soda (sodium bicarbonate) is neutralizer for acid.

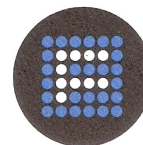
6.4 Reference to other sections

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 vapor or mist. Provide appropriate exhaust ventilation. Professionally wash contaminated clothes before re-use. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store liquid at ambient conditions. Wash thoroughly after handling to remove all residue.

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	CAS	OSHA TWA	ACGIH TLV
Hydrobromic Acid	10035-10-6	3 ppm 10 mg/m ³	2 ppm
ethylamine 70% (monoethylamine)	75-04-7	10 ppm 18 mg/m ³	5 ppm
Pentaerythritol	115-77-5	5 mg/m ³	10 mg/m ³

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**

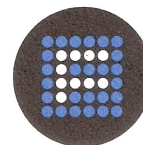
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Physical state:	Water white liquid
Odor:	Organic
Flash point:	N/E
pH:	<1
Vapor pressure:	N/E
Vapor density:	N/E
Boiling Point:	~212 °F
Specific gravity:	1.04 (H ₂ O = 1 at 72°F)
Solubility in water:	Complete
Evaporation Rate (butyl acetate = 1) >1	
Percent volatiles by volume 2	

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

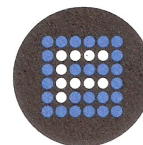
10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials



Strong bases, Strong oxidizing agents, Ammonia, Ozone, Fluorine

10.6 Hazardous decomposition products

Carbon dioxide, water, hydrogen bromide gas, ammonia, oxides of nitrogen

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Component toxicity

Components	LC50/Inhalation	LC50/Dermal/Rat	LD50/Oral/Rat
Hydrobromic Acid	2858 ppm	No data available	No data available
ethylamine 70% (monoethylamine)	No data available	No data available	No data available
Pentaerythritol	No data available	No data available	5110 mg/kg

11.2 Effects of Acute Overexposure:

- Inhalation: No data available.
- Eyes: Rabbit – Result: Eye irritation
- Skin Contact: no data available
- 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:

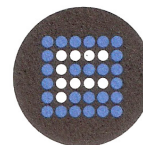
No data available

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/24 hr
Hydrobromic Acid	No data available	No data available	No data available	No data available
ethylamine 70% (monoethylamine)	No data available	No data available	No data available	No data available
Pentaerythritol	100 mg/l <i>Oryzias latipes</i>	33600 mg/l <i>Daphnia magna</i>	No data available	No data available

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

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. 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. Dispose of in accordance with all federal, state, and local regulations.

RCRA Hazardous Waste:

RCRA: D002

Contaminated packaging

Dispose of as unused product.



SECTION 14: TRANSPORT INFORMATION

DOT (US)

Proper Shipping Name: Corrosive Liquids, n.o.s. (Hydrobromic Acid, Ethylamine)
 Hazard Class: 8
 ID: UN1760
 Packaging Group: PGI
 ERG Guide No. : 154

SECTION 15: REGULATORY INFORMATION

International Inventories

USA (TSCA): Complies

Federal Regulations

SARA Title III 313 Reportable Substances

This product does not contain chemicals which are subject to the reporting requirements of the Act and of Title 40 of the Code of Federal Regulations, Part 372

SARA Title III Section 311/312 Hazard Categories:

Acute Health Hazard
 Chronic Health Hazard

Toxic Substance Control Act (TSCA)

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

None

State Regulations (RTK)

Massachusetts Right to Know Components

Component	CAS No.
Hydrobromic Acid	10035-10-6
ethylamine 70% (monoethylamine)	75-04-7
Pentaerythritol	115-77-5

SAFETY DATA SHEET



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Pennsylvania Right to Know Components

Component	CAS No.
Hydrobromic Acid	10035-10-6
ethylamine 70% (monoethylamine)	75-04-7
Pentaerythritol	115-77-5

New Jersey Right to Know Components

Component	CAS No.
Hydrobromic Acid	10035-10-6
ethylamine 70% (monoethylamine)	75-04-7
Pentaerythritol	115-77-5

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: 1

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.