SAFETY DATA SHEET

FORCE INDUSTRIES DIVISION

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

Product identifier
Product name: **AMCO 5093**
Other means of identification
Product code: 773

Recommended use of the chemical and restrictions on use
Recommended use: Battery lug casting and 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: May 25, 2017
Supersedes Date: February 6, 2013

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin Corrosion (Category 1A), H314
Serious Eye Damage (Category 1), H318
Specific target organ toxicity – single exposure (Category 3), Respiratory System
Chronic Aquatic Toxicity (Category 2), H411

Hazard statement(s)
H225: Highly flammable liquid and vapor
H302: Harmful if swallowed
H314: Causes severe skin burns and eye damage
H318: Causes serious eye damage
H335: May cause respiratory irritation
H411: Toxic to aquatic life with long lasting effects

2.2 GHS Label elements, including precautionary statements

Emergency overview

Appearance:	Water white to off-white
Physical state:	Liquid
Odor:	Sweet solvent
Signal Word:	Danger

Precautionary statement(s)

P210: Keep away from heat, sparks, hot surfaces, open flames, and other ignition sources.
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

Component	CAS No.	EINECS No.	Weight %
Hydrobromic Acid	10035-10-6	233-113-0	25 - 30%
Phosphoric Acid	7664-38-2	231-633-2	5 – 10%
Butyl Alcohol	71-36-3	200-751-6	5 – 8%
Propyl Alcohol	71-23-8	200-746-9	30 – 37%
Methyl Isobutyl Ketone	108-10-1	203-550-1	1 – 5%
Monoethanolamine	141-43-5	205-483-3	5 - 10%

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 immediately. Continue rinsing eyes during transport to hospital.

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

I**ngestion**: 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 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 phosphorus fumes. Toxic metal halide fumes produced. Dense smoke may be generated. Vapors may travel with air currents and re-ignited by ignition sources distant from the material.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary. Full protective equipment required. Use water spray to cool fire exposed containers.

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 product 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 PEL
Hydrobromic Acid	10035-10-6	3 mg/m^3
Phosphoric Acid	7664-38-2	1 mg/m^3
Butyl Alcohol	71-36-3	100 mg/m^3
Propyl Alcohol	71-23-8	200 mg/m^3
Methyl Isobutyl Ketone	108-10-1	100 mg/m^3
Monoethanolamine	141-43-5	3 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:	Clear white to off-white liquid
Odor:	Sweet solvent
Flash point:	60 °F
pH:	1
Vapor pressure:	N/E
Vapor density:	N/E
Boiling Point:	>N/E
Specific gravity:	1.048 – 1.050 (H_2O = 1 at 72^{o}F)
Solubility in water:	Soluble but hazy appearance

Evaporation Rate (butyl acetate = 1): 1
Percent volatiles by volume: < 62

9.2 Other safety information
None

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
None

10.2 Chemical stability
Stable under recommended storage conditions
.

10.3 Possibility of hazardous reactions
Will not occur

10.4 Conditions to avoid
None

10.5 Incompatible materials
Alkaline materials, oxidizers, metals

10.6 Hazardous decomposition products

Carbon dioxide, hydrogen bromide gas, ammonia, phosphorus fumes

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Component toxicity

Components	LC50/Inhalation	LC50/Dermal/Rat	LD50/Oral/Rat
Phosphoric Acid	850 mg/kg	2740 mg/kg	1530 mg/kg
Hydrobromic Acid	2858 ppm	No data available	No data available
Ethanolamine	1210 mg/kg	No data available	1720 mg/kg
Propyl Alcohol	13,550 ppm	No data available	8000 mg/kg
Butyl Alcohol	>17.9 mg/l (4 hr.)	No data available	790 mg/kg
Methyl Isobutyl Ketone	3000 ppm (4 hr.)	No data available	2080 mg/kg

11.2 Effects of Acute Overexposure:

a. Inhalation: No data available.

b. Eyes: Rabbit – Result: Eye irritation

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:

According to the IARC, methyl isobutyl ketone is in group 2B – possibly carcinogenic to humans.

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
Phosphoric acid	138 mg/l (Mosquito fish, 96 hr.)	No data available	No data available	No data available
Ethanolamine	2600 mg/l (Zebra fish, 96 hr.)	Daphnia Magna (water flea) – 100 mg/l	No data available	No data available
Propyl alcohol	3800 mg/l (Alburnus alburnus, 96 hr.)	Daphnia magna (water flea) – 6300 mg/l	Cannot bioaccumulate	No data available
Butyl Alcohol	1376 mg/l (Fathead minnow, 96 hr.)	No data available	No data available	No data available
Methyl isobutyl ketone	460 mg/l (Goldfish, 24 hr.)	No data available	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: Flammable liquids, Corrosive Liquids, n.o.s. (Hydrobromic Acid, Propyl Alcohol)
Hazard Class: 3, 8
ID: UN2924
Packaging Group: PG ll
ERG Guide No.: 132

SECTION 15: REGULATORY INFORMATION

International Inventories

USA (TSCA): Complies

Federal Regulations

SARA Tittle III 313 Reportable Substances

This product does not contains 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.
Methyl Isobutyl Ketone	108-10-1
Phosphoric Acid	7664-38-2
Butyl Alcohol	71-36-3

Pennsylvania Right to Know Components

Component	CAS No.
Hydrobromic Acid	10035-10-6
Phosphoric Acid	7664-38-2
Monoethanolamine	141-43-5

New Jersey Right to Know Components

Component	CAS No.
Hydrobromic Acid	10035-10-6
Phosphoric Acid	7664-38-2
Monoethanolamine	141-43-5
Propyl Alcohol	71-23-8
Butyl Alcohol	71-36-3
Methyl Isobutyl Alcohol	108-10-1

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: 3
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 declaims 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.