



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

Product identifier

Product name: AMCO 446 Black

Other means of identification

Product code: 199

Recommended use of the chemical and restrictions on use

Recommended use: General purpose silver solder/braze 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 inquiries about this product, call Force Industries Division at 610-647-3575.

Revision Date: July 19, 2016

Supersedes Date: May 3, 2016

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 1B), H314
Serious Eye Damage (Category 1), H318
Acute toxicity, oral (Category 3), H301
Reproductive toxicity (Category 2), H361

Hazard statement(s)


H301: Toxic if swallowed
H314: Causes severe skin burns and eye damage
H318: Causes serious eye damage
H361: Suspected of damaging fertility or the unborn child



2.2 GHS Label elements, including precautionary statements

Emergency overview

Appearance:	Black
Physical state:	Smooth Paste
Odor:	None
Signal Word:	Danger



Precautionary statement(s)

P260: Do not breathe dust/fumes/gas/mist/vapors/spray.
P264: Wash skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310+P330+P331: IF SWALLOWED: Immediately call a POISON CENTER or physician, rinse mouth and DO NOT induce vomiting.
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. Contact a physician if you feel unwell.
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
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>
Potassium Bifluoride	7789-29-9	232-156-2	25-45
Boric Acid	10043-35-3	233-139-2	10-25
Potassium tetraborate	1332-77-0	215-575-5	5-20

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.

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.

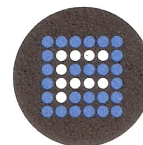
Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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 potassium oxides, hydrogen bromide gas and hydrogen fluoride fumes. 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. Do not flush into surface water or sanitary sewer system.

6.3 Methods and materials for containment and cleaning up

Soak up material with inert absorbent material. Squeegee, scrape or shovel material into a suitable container. Clean spill area thoroughly.

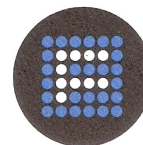
6.4 Reference to other sections

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 flux at ambient conditions, keep containers tightly closed and away from foodstuffs. Wash thoroughly after handling to remove all residues. No eating or smoking in work area.

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	OSHA TWA	ACGIH TLV	ACGIH TWA
Potassium bifluoride	2.5 mg/m ³	NA	2.5 mg/m ³	NA
Boron Oxide* B ₂ O ₃	15 mg/m ³	NA	10 mg/m ³	NA

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

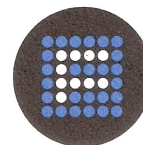
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

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

APPEARANCE: Black Paste

ODOR: None

pH: 8-9

BOILING POINT: ~ 100 C

SOLUBILITY IN WATER: Moderate

SPECIFIC GRAVITY (H₂O = 1): 1.62

EVAPORATION RATE: NA

% VOLATILE: NA

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

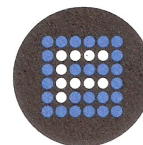
No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Acids, alkalis

**10.6 Hazardous decomposition products**

Hydrogen fluoride and caustic potash are expected.

SECTION 11: TOXICOLOGICAL INFORMATION
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11.1 Component toxicity

Components	LC50/Inhalation/6h/Rat	LC50/Dermal	LD50/Oral/Rat
Boric Acid	Not known	Not Known	2660 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:

Skin, eyes, and inhalation

11.4 Effects of Chronic Exposure:

Coughing, erythema, nausea. Osseous fluorosis due to fluoride. Chronic fluoride absorption can result in osseous fluorosis, increased radiographic density of the bones and mottling of the teeth. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

11.5 Target Organs:

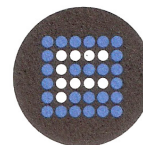
Skin, nasal, respiratory irritant and kidney

11.6 Reproductive Effects

Reproductive toxicity: Boric Acid is a presumed human reproductive toxicant, Teratogenicity: Boric Acid - fetotoxicity

11.7 Carcinogenicity:

No data available



SECTION 12: ECOLOGICAL INFORMATION

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish

Components	LC50 - <i>Ptychocheilus lucius</i>	LC0 - <i>Lepomis macrochirus</i> (Bluegill)
Boric Acid	279 mg/l - 96 h	> 1,021 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates.

Components	LC50 - <i>Daphnia magna</i> (Water flea)	EC50 - <i>Daphnia magna</i> (Water flea)
Boric Acid	53.2 mg/l - 21 d	133 mg/l - 48 h

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.

Contaminated packaging

Dispose of as unused product.



SECTION 14: TRANSPORT INFORMATION

DOT (US)

Not Regulated

IMDG

Not Regulated

IATA

Not Regulated

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)

Pennsylvania Right to Know Components

Component	CAS No.
Potassium hydrogen difluoride	7789-29-9

SAFETY DATA SHEET



FORCE
INDUSTRIES
DIVISION

New Jersey Right to Know Components

Component	CAS No.
Potassium hydrogen difluoride	7789-29-9

WHIMS HAZARD CLASS: Class E Corrosive Material
Class D-2B: Material causing other toxic effects (Toxic).

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: 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.