

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

Product identifier

Product name: AMCO 64

Other means of identification

Product code: 589

Recommended use of the chemical and restrictions on use

Recommended use: General purpose low temperature aluminum 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 inquiries about this product, call Force Industries Division at 610-647-3575

Revision Date: July 12, 2016

Supersedes: November 6, 2015

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)
Skin sensitization (Category 1)
Serious eye damage (Category 1)
Reproductive Toxicity (Category 1B)
Corrosive to metals (Category 1)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

For the full text of the H-Statements mentioned in this Section, see Section 16. Classification

Hazard statement(s)

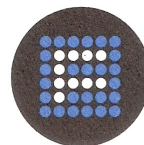
H290: May be corrosive to metals.

H302 + H312 + H332: Harmful if swallowed, in contact with skin or if inhaled

H314: Causes severe skin burns and eye damage.

H317: May cause an allergic skin reaction.

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H360: May damage fertility or the unborn child
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:	Yellow/Amber
Physical state:	Viscous Liquid
Odor:	Ammoniac
Signal Word:	<u>DANGER</u>

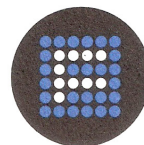


Precautionary statement(s)

P234: Keep only in original container.
P260: Do not breathe dust or mist.
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.
P273: Avoid release to the environment.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331: IF SWALLOWED: rinse mouth. 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 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/ physician.
P363: Wash contaminated clothing before reuse.
P390: Absorb spillage to prevent material damage.
P391: Collect spillage.
P405: Store locked up.
P406: Store in corrosive resistant stainless steel container with a resistant inner liner.
P501: Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Lachrymator.

**SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS**

Component	CAS No.	EINECS No.	Weight %
Aminoethylethanolamine	111-41-1	203-867-5	45-60
Ammonium Fluoroborate	13826-83-0	237-531-4	20-40
Zinc oxide	1314-13-2	215-222-5	5-20

Others, if any, are non-hazardous and are 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 out of dangerous area.

If inhaled

If breathed in, remove person to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

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

If swallowed

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

4.2 Most important symptoms and effects, both acute and delayed

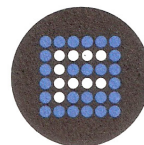
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

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

Suitable extinguishing media



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

5.2 Special hazards arising from the substance or mixture

Ammonia, Hydrogen fluoride, Borane/boron oxides

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. Fire fighters must wear fire resistant personnel protective equipment. Wear chemical resistant over suit.

5.4 Further information

Hydrofluoric acid solution may be formed within water run off.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. 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

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

In case of accidental release or spill, immediately notify the appropriate authorities if required by Federal, State/Provincial and local laws and regulations. Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. Keep in properly labeled containers. Prevent product from entering drains. Clean spill area thoroughly. Local authorities should be advised if significant spillages cannot be contained.

6.4 Reference to other sections

For disposal see section 13. Personal precautions, protective equipment and emergency procedures

SECTION 7: HANDLING AND STORAGE

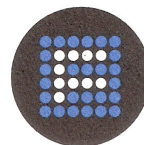
7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

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 and kept upright to prevent leakage.



Hygroscopic.

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

Component	CAS-No.	Value	Control parameters	Basis
Aminoethylethanolamine	111-41-1	none	none	none
Zinc oxide	1314-13-2	TWA	2 mg/m ³	See Note 1 below
Ammonium Fluoroborate	13826-83-0	TWA	2.5 mg/m ³	See Note 2 below

Note 1: TWA USA. ACGIH Threshold Limit Values (TLV)

Note 2: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants and Table Z2 Occupational Exposure Limits

8.2 Exposure controls

Appropriate engineering controls

General industrial hygiene practice.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Face shield (8-inch minimum). 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 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

Do not let product enter drains.

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

Physical state:	Viscous Liquid
Odor:	Ammoniac
Color:	Yellow/Amber
Flash point:	275 °F
Boiling Point	265 °F
Vapor pressure:	N/A
Vapor density:	N/A
Specific gravity:	1.38
Water solubility:	Complete

9.2 Other safety information

None

SECTION 10: STABILITY AND REACTIVITY**10.1 Reactivity**

No data available

10.2 Chemical stability

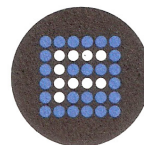
Stable under recommended storage conditions

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Avoid moisture.

**10.5 Incompatible materials**

Strong acids, bases cyanides, sulfides and oxidizing agents.

10.6 Hazardous decomposition products

Other decomposition products – no reactivity

No dangerous reaction known under conditions of normal use

SECTION 11: TOXICOLOGICAL INFORMATION
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Component toxicity

Components	LC50/Inhalation/1h/Rat	LD50/Rabbit	LD50/Oral/Rat
Aminoethylethanolamine	No data	2200 mg/kg	3000 mg/kg

Reproductive toxicity

No data available

Chronic Toxicity and Carcinogenicity

No data available

Carcinogenicity:

No data available

Developmental Toxicity

For the major component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. However, the relevance of this to humans is unknown. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Reproductive Toxicity

For the minor component(s): In animals, effects have been reported on the following organs: Male reproductive organs. Repeated excessive exposures to high amounts may cause effects on testes and fertility in males.

Genetic Toxicology

Based on information for component(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

**Aspiration hazard**

No data available

Additional Information

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

SECTION 12: ECOLOGICAL INFORMATION**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

Toxicity to fish LC50 - Danio rerio (zebra fish) - 2,600 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - > 100 mg/l

Remarks: Information given is based on data on the components and the ecotoxicology of similar products.

Toxicity to algae NOEC - Pseudokirchneriella subcapitata (green algae) - > 100 mg/l
– 72 hr Remarks: Information given is based on data on the components and the eco-toxicology of similar products.

12.2 Persistence and degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Indirect photo degradation with OH Radicals

Rate Constant Atmospheric Half-life Method

1.20E-10 cm³/s 1.1 h Estimated OECD Biodegradation Tests: Biodegradation

Exposure Time Method > 97 % 28 d OECD 301F Test

12.3 Bio-accumulative potential

No data available

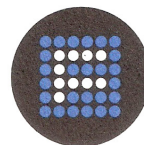
12.4 Mobility in soil

Potential for mobility in soil is very high (Koc between 0 and 50). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Henry's Law Constant (H): 8.8E-10 atm*m³/mole; 25 °C Estimated

Partition coefficient, n-octanol/water (log Pow): -1.46 Measured

Partition coefficient, soil organic carbon/water (Koc): 3.5 Estimated

**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
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13.1 Waste treatment methods**Product**

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
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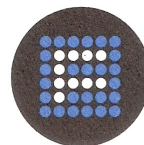
U.S. Department of Transportation Ground (49CFR)

Proper shipping name:	Corrosive Liquid NOS	(aminoethylethanolamine, ammonium fluoroborate)
UN No.:	1760	
Packing Groups:	II	
Hazard Class:	8	
Reportable Quantity (RQ):	None	
Marine Pollutant:	No	

International Air Transportation (ICAO/IATA):

Proper shipping name:	Corrosive Liquid NOS	(aminoethylethanolamine, ammonium fluoroborate)
UN No.:	1760	
Packaging Groups:	II	
Hazard Class:	8	
Hazard labels:	Corrosive	
IATA PKG Inst#	855	
	Cargo aircraft only	
ERG Guide Number:	154	

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International Maritime Organization (IMO/IMDG):

Proper Shipping name: Corrosive Liquid NOS (aminoethylethanolamine, ammonium fluoroborate)
UN No.: 1760
Packaging Groups: II
Hazard Class: 8
Hazard labels: Corrosive
IMDG – Marine Pollutant: No

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	12

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

Ammonium Fluoroborate
Zinc Oxide

Toxic Substance Control Act (TSCA)

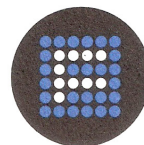
If listed below, non-proprietary substances are subject to export notification Section 12 (b) of TSCA:
None listed

State Regulations (RTK)

Pennsylvania Right to Know Components

Component	CAS No.
Ammonium Fluoroborate	13826-83-0

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Zinc Oxide	1314-13-2
Aminoethylethanolamine	111-41-1

New Jersey Right to Know Components

Component	CAS No.
Ammonium Fluoroborate	13826-83-0
Zinc Oxide	1314-13-2
Aminoethylethanolamine	111-41-1

California Proposition 65

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

SECTION 16: OTHER INFORMATION

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

Eye Dam. Serious eye damage

H314: Causes severe skin burns and eye damage.

H317: May cause an allergic skin reaction.

H318: Causes serious eye damage.

Skin corrosion

Skin sensitization

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.