

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name: AMCO 2213 CAS number: N/A - mixture
Chemical Name & Synonyms: N/A - mixture
Appearance: Viscous amber liquid with strong ammonia odor
Use: General purpose low temperature aluminum soldering flux
Manufacturer: Force Industries Division, 28 Industrial Blvd. Paoli, PA 19301. Tel. 610-647-3575
EMERGENCY PHONE No. CALL CHEMTREC (800) 424-9300 * Available 24 Hours

II. CHEMICAL COMPOSITION

Material	SARA III	CAS Number	OSHA PEL	ACGIH TLV
Aminoethylethanolamine	-----	111-41-1	-----	-----
Ammonium fluoborate	< 20.0%	13826-83-0	2.5 mg/m ³ as F	2.5 mg/m ³ as F
Zinc oxide	< 10.0%	1314-13-2	5.0 mg/m ³	10 mg/m ³
Triethanolamine	-----	102-71-6	-----	5.0 mg/m ³
Stannous Fluoborate	-----	13814-97-6	2.5 mg/m ³ as F	2.5 mg/m ³ as F
Zinc Fluoborate	-----	13826-88-5	-----	2.5 mg/m ³ as F

Others, if any, are non-hazardous and are claimed as trade secret.

Hazard Rating: HMIS: (H =3 F=0 R=0 PE=E) NFPA: (H=3 F=0 R=0)

III. POTENTIAL HEALTH EFFECTS AND HEALTH HAZARD DATA

Target organ statement: Causes severe burns to skin, and eyes. Harmful, if inhaled or swallowed.
Effects of Chronic Exposure: Coughing, liver and kidney effects, nausea, erythema. Osseous fluorosis due to F
Effects of Acute Overexposure
Swallowing: Can cause damage to digestive system. Corrosive to mucous membranes. May cause salivation, nausea, vomiting, diarrhea and abdominal pain. Fluoride ion can reduce serum calcium levels, possibly causing fatal hypocalcemia. Systemic toxicity and shock. Do not aspirate into lungs.
Skin Absorption: Non currently known. Fumes may be penetrable.
Inhalation: Highly irritating to respiratory system. Coughing and sneezing. Existing lung disorders will be aggravated. Inhalation may yield: chills, labored breathing, fevers, and unproductive cough. The fluoride ion may cause hypocalcemia - calcium deficiency in the blood. Inflammation and necrosis of mucous membranes.
Skin Contact: Severe dermatitis, possible burns and pustular dermatitis, corrosive to skin. Existing disorders will be aggravated. Hypocalcemia.
Eye Contact: Strong irritation to eyes, tearing, burn of eye surface, corrosive to eyes, may cause blindness.

IV. EMERGENCY AND FIRST AID PROCEDURES

Swallowing: May be fatal! Corrosive to mucous membranes. Call a physician or your Poison Control Center IMMEDIATELY .
Skin: Promptly flush with water to remove all residue. If rash or burn develops, consult a physician. Product is corrosive.
Inhalation: Remove to fresh air. If fumes are inhaled, call a physician.
Eyes: Flush with water for at least 20 minutes to remove all residue. Get medical help NOW! Blindness can result.

V. FIRE AND EXPLOSION DATA

Flash point (°F): > 275
Flammable limits in air LOWER: 1.6 estimated UPPER: 10.0 estimated (% by volume)
Extinguishing media: Water, fog, foam, or dry chemical
Special fire fighting method: Full protective equipment required. May release toxic ammonia, boron oxide or fluoride fumes. Oxides of nitrogen.
Unusual fire and explosion hazards: Avoid splashing this material and solutions of it onto personnel. Hydrofluoric acid solution may be formed within water run off.

VI. REACTIVITY INFORMATION

Stability considerations/Conditions to avoid: Stable/Excessive heat: decomposes forming corrosive, skin penetrating, and toxic gases.
Hazardous polymerization/Conditions to avoid: Will not occur/None
Incompatibility/Materials to avoid: Cyanides, sulfides, strong oxidants
Hazardous combustion or Decomposition products: Toxic hydrofluoric acid, ammonia, and boron trifluoride are expected.

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VII. SPILL AND LEAK RESPONSE

Steps to be taken if material is released or spilled: Contain, absorb, sweep-up, and dispose. Flush area to chemical sewer. Prevent direct contact to skin, eyes, and clothes.

Waste disposal method: Dispose of in accordance with local, state, and federal regulations.

VIII. SPECIAL PROTECTION INFORMATION

Respiratory protection: If the work station is not properly ventilated to exhaust all fumes and dusts, use NIOSH approved mask for complete respiratory and eye protection.

Ventilation: Maintain air flow away from user to remove all fumes and dusts, so that the PEL is never exceeded. Adhere to environmental regulations for exhausts.

Protective gloves: Chemical and acid impervious.

Eye protection: Chemical tight safety goggles. Do NOT wear contact lenses.

Other protective method: Full protective equipment normally used in a soldering operation to prevent any contact. Do not wear work clothes home - shower after work shift.

IX. STORAGE, HANDLING AND SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store flux at away from heat. Keep containers tightly closed and away from food stuffs. Wash thoroughly after handling to remove all residue. No eating or smoking in work area.

Other precautions: Do Not breathe fumes. Professionally wash contaminated clothing before re-use. Existing lung disorders will have increased toxic susceptibility.

X. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point, °F:	N/E	Specific gravity, 72°F:	1.30
Vapor density (air = 1):	N/E	Vapor pressure:	N/E
Percent volatiles by volume:	8.6	Solubility in water:	Complete
Evaporation rate (butyl acetate = 1):	N/E	pH:	10-11

XI. OPTIONAL INFORMATION

Department of Transportation: DOMESTIC GROUND

Proper shipping name: Corrosive Liquid, N.O.S. (Aminoethylethanolamine, Ammonium Fluoborate)

Hazard Class: 8

ID & Packing Group Number: UN 1760, PG II

ERG Guide Number: 154

Toxic Substance Control Act: All components of this compound are listed within the TSCA inventory.

Hazard Communication Program: Hazardous warnings and training requirements as mandated for corrosive material.

SARA Title III Program: This product contains the following toxic chemicals subject to the reporting requirements of EPCRA of 1986 and 40 CFR 372. This information must be included in all MSDS that are copied and distributed for this material

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Concentration</u>
Zinc compound	7646-85-7	<10%

CERCLA. The following components of the product and their respective RQs are listed in 40CFR 302.

Ammonium Fluoborate	13826-83-0	RQ= 5000 lbs.
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State Right-to-Know Programs:
Pennsylvania:

This product contains the following chemicals listed in PA Code Title 34, Hazardous Substance List: Aminoethylethanolamine, ammonium fluoborate, zinc oxide, triethanolamine and zinc fluoborate

California: This product contains the following compounds subject to the reporting and labeling requirements of Proposition 65: None

NOTES: NA=Not Applicable NE=Not Established H=Health
F=Fire R=Reactivity PE=Personal Equipment

While we believe all information presented herein is accurate and reliable, the data are not to be taken as a guarantee or representation of any kind for which Force Industries assumes legal responsibility. They are offered solely for your consideration, investigation, and verification.