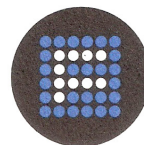


# SAFETY DATA SHEET



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

### Product identifier

Product name: **AMCO 4013**

### Other means of identification

Product code: **247**

### Recommended use of the chemical and restrictions on use

Recommended use: Aluminum Welding 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 material incidents only, call CHEMTREC: 1-800-424-9300.

For all other inquiries about this product, call Force Industries Division at 610-647-3575.

Revision Date: February 6, 2017

Supersedes: April 3, 2012

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

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

Acute Toxicity Inhalation 4

Acute Toxicity Oral 3

Germ Cell Mutagenicity 2

Reproductive Toxicity 2

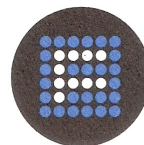
Serious Eye Damage 2

Skin Corrosion 2

Skin Sensitization 1A

Specific Target Organ Toxicity - single exposure 3, Respiratory system

Acute Aquatic Toxicity 3

**2.2 GHS Label elements, including precautionary statements**

<b>Appearance:</b>	White
<b>Physical state:</b>	Powder
<b>Odor:</b>	None

**DANGER**

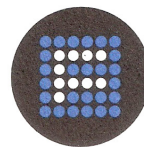
**Hazard statement(s)**

- H301 Toxic if swallowed.
- H319 Causes serious eye irritation.
- H360 May damage fertility or the unborn child.
- H361 Suspected of damaging fertility or the unborn child.
- H402 Harmful to aquatic life.

**Precautionary statement(s)**

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P264 Wash skin thoroughly after handling.
- P273 Avoid release to the environment.
- P280 Wear eye protection/ face protection.
- P281 Use personal protective equipment as required.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P301+P312+P330+P331: IF SWALLOWED: Call a POISON CENTER immediately and rinse mouth.
- P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P308 + P313 IF exposed or concerned: Get medical advice/ attention.
- P337+P313 IF eye irritation persists: Get medical advice/ attention.
- P405 Store locked up.
- P501 Dispose of contents/container to an approved waste disposal plant.

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS –none.**

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

<b>Component</b>	<b>CAS No.</b>	<b>EINECS No.</b>	<b>Weight %</b>
Lithium Chloride	7447-41-8	231-212-3	5 - 20
Sodium Chloride	7647-14-5	231-598-3	30 - 45
Lithium Fluoride	7789-24-4	232-152-0	5 - 20
Potassium Chloride	7447-40-7	231-211-8	30 - 45

**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**

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**

Wash off with soap and plenty of water.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

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 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**

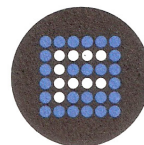
Does not support combustion. Be aware of other materials in surrounding area to determine if water, fog, foam, or CO<sub>2</sub> may be used.

**5.2 Special hazards arising from the substance or mixture**

Metal halide and toxic fumes produced; use a SCBA

**5.3 Advice for firefighters**

In the event of fire, wear self-contained breathing apparatus.



## 5.4 Further information

No data available.

## 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. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Contain spill, absorb, sweep-up. Remove to chemical sewer. Flush area to chemical sewer.

### 6.4 Reference to other sections

For disposal see section 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1 Precautions for safe handling

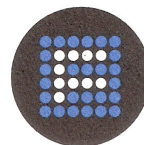
Wash hands thoroughly to remove all residue. Use full protective equipment normally used in a braze/welding operation so to prevent any contact. Review operations to avoid contact with hazardous gas, liquids, or solids.

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

Store material under ambient conditions; keep dry.

### 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
Lithium Chloride	7447-41-8	TWA	10 mg/m <sup>3</sup>	ACGIH Threshold Limit Values (TLV)
Lithium Fluoride	7789-24-4	TWA	2.5 mg/m <sup>3</sup> as F	ACGIH Threshold Limit Values (TLV)
Potassium Chloride	7447-40-7	TWA	10 mg/m <sup>3</sup>	ACGIH Threshold Limit Values (TLV)

**8.2 Exposure controls****Appropriate engineering controls**

General industrial hygiene practice.

**Personal protective equipment****Eye/face protection**

Safety glasses with side-shields. 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 in accordance with 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 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**

Do not let product enter drains. Discharge into the environment must be avoided.



## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

## 9.1 Information on basic physical and chemical properties

<b>Physical state:</b>	Powder
<b>Odor:</b>	None
<b>Color:</b>	White
<b>Flash point:</b>	N/A
<b>Vapor pressure:</b>	N/A
<b>Vapor density:</b>	N/A
<b>Specific gravity:</b>	2.11 (H <sub>2</sub> O = 1 @ 72°F)
<b>Water solubility:</b>	Moderate

## 9.2 Other safety information

No other data

## 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

None

## 10.5 Incompatible materials

Strong acids

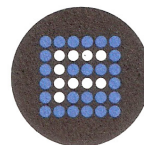
## 10.6 Hazardous decomposition products

In the presence of water and heat, HCl and HF may be produced.

## SECTION 11: TOXICOLOGICAL INFORMATION

## Component toxicity

Components	LC50/Rat (Inhalation)/1 hr	LD50/Oral/Rat
Lithium Chloride	No data available	526mg/kg
Lithium Fluoride	No data available	143 mg/kg
Potassium Chloride	2 mg/l (4 hr)	>2600 mg/kg
Sodium Chloride	>42 g/m <sup>3</sup>	>3000 mg/kg

**Reproductive toxicity**

In animal testing, risk of impaired fertility was shown only after administration of very high doses of this substance

**Skin corrosion/irritation**

Dermatitis, possible chemical burn. Can aggravate existing skin disorders.

**Serious eye damage/eye irritation**

Eyes - Rabbit Result: Severe eye irritation

**Respiratory or skin sensitization**

May cause respiratory irritation. Not known as a skin absorbent.

**Germ cell mutagenicity**

No data available

**Chronic Toxicity and Carcinogenicity**

IARC: 3 – Group 3: Not classifiable as to its carcinogenicity to humans (Lithium fluoride)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Developmental Toxicity**

No data available

**Reproductive Toxicity**

Suspected human reproductive toxicant

**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**

Oral – May cause damage to organs through prolonged or repeated exposure – respiratory system

**Aspiration hazard**

No data available

**Additional Information**

Liver – Irregularities based on human evidence (Lithium chloride)

Stomach – Irregularities based on human evidence (Lithium chloride)

Lithium dust and fumes are absorbed through the lungs which can cause lung damage.

Pre-existing lung disorders will be aggravated.

If product is in contact with acids, toxic gases can be liberated.



## SECTION 12: ECOLOGICAL INFORMATION

## 12. ECOLOGICAL INFORMATION

## 12.1 Toxicity

Components	LC50 96 hr	EC50	Bioaccumulation Concentration Factor	EC10
Lithium Chloride	17 mg/l mg/L (fish)	1.2 mg/l (water flea 64 hr)	No data available	No data available
Potassium Chloride	Lepomis macrochirus – 2010 mg/l	Scenedesmus subspicatus – 2500 mg/l	No Data available	No Data available
Sodium Chloride	Daphnia Magna – 3,144 to 10,000 mg/l	Daphnia Pulex – 56.40 mM	No Data available	No Data available
Lithium Fluoride	No Data available	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

No data available

## SECTION 13: DISPOSAL CONSIDERATIONS

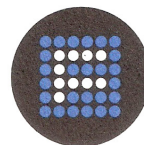
## 13.1 Waste treatment methods

**Product**

Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company.



# SAFETY DATA SHEET



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## **Contaminated packaging**

Dispose of in accordance with all local, state, and federal regulations.

## SECTION 14: TRANSPORT INFORMATION

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

Not a regulated product

### **International Air Transportation (ICAO/IATA):**

Not dangerous goods

## SECTION 15: REGULATORY INFORMATION

### **International Inventories**

**USA (TSCA):** Complies

### **Federal Regulations**

#### **SARA Title III 313 Reportable Substances**

This material contains the following chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 3

None

#### **SARA Title III Section 311/312 Hazard Categories:**

Chronic Health Hazard

Acute Health Hazard

#### **State Regulations (RTK)**

##### **Pennsylvania Right to Know Components**

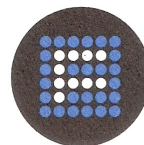
None listed

##### **New Jersey Right to Know Components**

None listed

#### **California Proposition 65**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.



<b>SECTION 16: OTHER INFORMATION</b>
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**Full text of H-Statements referred to under sections 2 and 3.**

Acute Toxicity Inhalation 4	Acute Toxicity – Inhalation, Category 4.
Acute Toxicity Oral 3	Acute Toxicity – Oral, Category 3
Acute Aquatic Toxicity 3	Aquatic Toxicity – Acute, Category 3
Serious Eye Damage 2	Eye Damage/Irritation, Category 2
Germ Cell Mutagenicity 2	Germ Cell Mutagenicity, Category 2
Reproductive Toxicity 2	Reproductive Toxicity, Category 2
Skin Corrosion 2	Skin Corrosion/Irritation, Category 2
Skin Sensitization 1A	Skin Sensitization, Category 1
Specific Target Organ Toxicity	Specific Target Organ Toxicity – Single Exposure Category 3 Respiratory system
H319	Eye Irritant. Causes serious eye irritation.
H360	May damage fertility or the unborn child.
H361	Suspected of damaging fertility or the unborn child.
H402	Harmful to aquatic life.

**HMS:****Health:** 2\***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.