



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

Product identifier

Product name: AMCO 4590

Other means of identification

Product code: 172

Recommended use of the chemical and restrictions on use

Recommended use: Battery lug casting / 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: April 19, 2017

Supersedes: June 28, 2007

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Acute Toxicity (Oral), Category 4

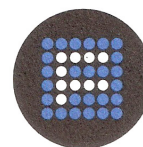
Eye Irritant, 2A H319

Skin Irritant, 2 H315

Specific target Organ toxicity single exposure, 3 H335

Hazard statement(s)

H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation



2.2 GHS Label elements, including precautionary statements

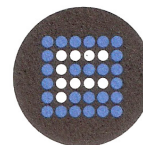
Emergency overview

Appearance:	Water Clear
Physical state:	Liquid
Odor:	None
Signal Word:	WARNING

Precautionary statement(s)

P234	Keep only in original container
P260	Do not breathe dust/fumes/gas/mist/vapors/spray.
P264	Wash 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: Call a POISON CENTER/ doctor and Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep 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.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P337+P313	If eye irritation persists get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P402	Store in a dry place
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to in accordance with local/regional/national/international regulation

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>
Glutamic acid HCl	138-15-8	205-315-9	1 – 10%
Urea	57-13-6	200-315-5	1 – 10%
Glycerine	56-81-5	200-289-5	15 – 35%

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: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

SKIN: In case of contact, wash skin with plenty of soap and water. If rash develops, consult a physician. Wash contaminated clothing before reuse.

INGESTION: If swallowed, do not induce vomiting. Give large quantities of water. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

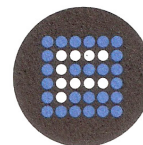
INHALATION: Remove to fresh air immediately and keep comfortable for breathing. Call a physician if you feel unwell.

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

Under conditions of fire, small amounts of hydrogen chloride gas, nitrogen oxide, ammonia, biuret, carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

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 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 let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of according to EPA regulations. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

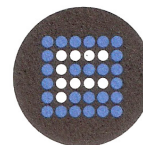
Wash thoroughly after handling to remove residue. Do not breathe fumes. Professionally wash contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Store flux at ambient conditions, keep extremely dry and controlled conditions. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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	ACGIH
Glycerine	5 mg/m ³	10 mg/m ³
Urea	5 mg/m ³	10 mg/m ³
Glutamic acid HCl	5 mg/m ³	5 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

Safety glasses with side-shields conforming to EN166 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.

Full contact:

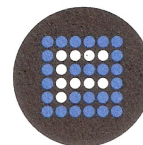
Material: Suitable protective clothing. Rubber boots. Rubber gloves. Rubber apron.

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 Prevent further leakage or spillage if safe to do so. 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

Appearance (physical state, color, etc.)	Water clear Liquid
Odor	None
pH	4 - 5
initial boiling point and boiling range	>212 ° F @ 760 mm Hg
evaporation rate	<1
flammability (solid, gas)	Not Applicable
upper/lower flammability or explosive limits	None
vapor pressure	NA
relative density	1.09 H ₂ O =1 @ 72° F

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

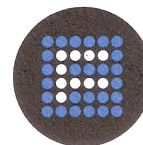
No data available

10.5 Incompatible materials

Strong oxidizing agents, strong acids or bases

10.6 Hazardous decomposition products

Other decomposition products - No data available in the event of fire: see section 5.

**SECTION 11: TOXICOLOGICAL INFORMATION****11.1 Component toxicity**

Components	LC50/Inhalation	LC50/Dermal/Rat	LD50/Oral/Rat
Glycerine	No data available	>10,000 mg/kg	12,600 mg/kg
Urea	No data available	No data available	8471 mg/kg
Glutamic acid HCl	No data available	No data available	No data available

11.2 Effects of Acute Overexposure:

- a. Inhalation: No data available
- b. Eyes: No data available
- 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:

No data available



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/24hr
Glycerine	>5000 mg/l – Carassius auratus (24 hr)	10000 mg/l – Daphnia Magna (24 hr)	Value: 3.16 Method (OECD 305C)	No data available
Urea	>9100 mg/l – Barnillius barna (96 hr)	>10000 mg/l – Daphnia magna (24 hr)	No data available	No data available
Glutamic acid HCl	No data available	No data available	No data available	No data available

12.2 Persistence and degradability

Glycerin and urea are reported to be readily biodegradable.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

Glutamic acid HCl, urea, and glycerin are all soluble in water

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

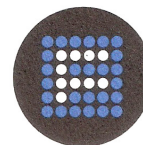
13.1 Waste treatment methods**Product**

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

RCRA: D002

Contaminated packaging

Dispose of as unused product.

**SECTION 14: TRANSPORT INFORMATION**

Department of Transportation:	Domestic Ground
UN Proper shipping name:	Not a regulated product
Transport Hazard class(es):	NA
Packing group, if applicable.	NA
Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises.	NA

SECTION 15: REGULATORY INFORMATIONSARA Title III Section 311/312 Hazard Categories:

Acute Health Hazard

SARA Title III 313 Reportable Substances

If listed below components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Toxic Substance Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification Section 12 (b) of TSCA:

None listed

California Proposition 65

This product does not contain a chemical known in the State of California that causes cancer.

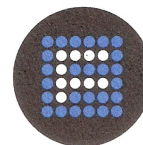
Chemical Inventory Status

Unless otherwise noted; this product is compliant with the inventory listings of the countries shown below. For information listings for countries not shown, contact the Product Regulatory Department.

Canada - DSL (Domestic Substance List): All raw materials used in this product are listed on DSL

USA - TSCA (TOXIC SUBSTANCE CONTROL ACT): All raw materials used in this product are listed on TSCA Inventory.

Europe - All raw materials used in this product are listed on EINECS Inventory.



SECTION 16: OTHER INFORMATION

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

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
H315	Skin irritant, Category 2
H335	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H319	Eye irritant, Category 2A
H335	May cause respiratory irritation

HMIS:**Health:** 1**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.