

SAFETY DATA SHEET

Revision: 1.0 Date: 21.10.2015


ACCORDING TO OSHA HCS (29 CFR 1910.1200)

www.vishaypg.com

SECTION 1: IDENTIFICATION

1.1 Product identifier	
Product Name	QF-LI Flux
Chemical Name	Mixture
CAS No.	Mixture
EINECS No.	Mixture
REACH Registration No.	None assigned.
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Identified Use(s)	Soldering flux
Uses Advised Against	None known.
1.3 Details of the supplier of the safety data sheet	
Company Identification	VISHAY MEASUREMENTS GROUP, INC. Post Office Box 27777 Raleigh, NC 27611 USA
Telephone	919-365-3800
Fax	919-365-3945
E-Mail (competent person)	mm.us@vishaypg.com
1.4 Emergency telephone number	1-800-424-9300 CHEMTREC

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture	
2.1.1 GHS Classification	Skin Corr. 1A; H314
2.2 Label elements	
Product Name	QF-LI Flux
Hazard Pictogram(s)	
Signal Word(s)	Danger
Contains:	L-Glutamic acid, hydrochloride
Hazard Statement(s)	H314: Causes severe skin burns and eye damage.
Precautionary Statement(s)	P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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/doctor.
OSHA Defined Hazards	None.
2.3 Other hazards	Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.

SAFETY DATA SHEET

Revision: 1.0 Date: 21.10.2015

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

www.vishaypg.com

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 **Substances** Not applicable.

3.2 **Mixtures** Substances in preparations / mixtures

GHS Classification

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
L-Glutamic acid, hydrochloride	10 - 30	138-15-8	205-315-9	Skin Corr. 1A; H314
Urea	5 - 10	57-13-6	200-315-5	Not classified

For full text of H/P Statements see section 16.

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

If it is suspected that fumes are still present, the responder should wear an appropriate mask or self-contained breathing apparatus. Wear suitable protective clothing. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Avoid all contact.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If symptoms develop, obtain medical attention. If breathing is difficult, oxygen should be given by a trained person.

Skin Contact

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Contaminated clothing should be thoroughly cleaned. Immediately call a POISON CENTER/doctor.

Eye Contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Treatment by an ophthalmologist due to possible caustic burn of the eyes may be required. Continue irrigation until medical attention can be obtained.

Ingestion

IF SWALLOWED: Rinse mouth. Do not give anything by mouth to an unconscious person. Do NOT induce vomiting. If symptoms develop, obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage. Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
IF IN EYES: Obtain prompt consultation, preferably from an ophthalmologist. Chemical eye burns may require extended irrigation.
IF ON SKIN: Immediately call a POISON CENTER/doctor.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media

As appropriate for surrounding fire. Extinguish with carbon dioxide, dry chemical, foam or waterspray.

Unsuitable extinguishing media

Do not use water jet. Direct water jet may spread the fire.

5.2 Special hazards arising from the substance or mixture

May decompose in a fire giving off toxic fumes. Oxides of carbon, Oxides of nitrogen and Aldehydes.

5.3 Advice for fire-fighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

SAFETY DATA SHEET

Revision: 1.0 Date: 21.10.2015

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

www.vishaypg.com

SECTION 6: ACCIDENTAL RELEASE MEASURES

- | | |
|--|--|
| 6.1 Personal precautions, protective equipment and emergency procedures | Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Avoid all contact. Do not breathe vapour. Wear suitable respiratory protective equipment. Use personal protective equipment as required. See Section: 8 |
| 6.2 Environmental precautions | Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. |
| 6.3 Methods and material for containment and cleaning up | Ensure full personal protection (including respiratory protection) during removal of spillages. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a lidded container for disposal or recovery. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste. |
| 6.4 Reference to other sections | See Section: 8, 13 |

SECTION 7: HANDLING AND STORAGE

- | | |
|--|--|
| 7.1 Precautions for safe handling | Ensure adequate ventilation. Avoid all contact. Do not breathe vapour. Avoid breathing smoke fumes during soldering. Use personal protective equipment as required. See Section: 8. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. |
| 7.2 Conditions for safe storage, including any incompatibilities
Storage temperature
Storage life
Incompatible materials | Keep only in original container. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition.
Keep cool.
Stable under normal conditions.
Keep away from: Strong oxidising agents, Acids and Alkalis. |
| 7.3 Specific end use(s) | Soldering flux |

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- | | |
|--|---|
| 8.1 Control parameters | |
| 8.1.1 Occupational Exposure Limits | No Occupational Exposure Limits assigned.
No OSHA permissible exposure limits (PELs).
No American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs). |
| 8.1.2 Biological limit value | Not established. |
| 8.2 Exposure controls | |
| 8.2.1 Appropriate engineering controls | Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Guarantee that the eye flushing systems and safety showers are located close to the working place. |
| 8.2.2 Individual protection measures, such as personal protective equipment (PPE) | General hygiene measures for the handling of chemicals are applicable. Avoid all contact. Do not breathe vapour. Avoid breathing smoke fumes during soldering. Wash hands before breaks and after work. Keep work clothes separately. Do not eat, drink or smoke at the work place. |

Eye/ face protection



Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection.

Skin protection



Hand protection: Wear impervious gloves. Gloves should be changed regularly to avoid permeation problems. The gloves type used must be chosen based on the work activity and duration as well as concentration/quantity of material being handled. Breakthrough time of the glove material: refer to the information

SAFETY DATA SHEET

Revision: 1.0 Date: 21.10.2015

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

www.vishaypg.com

provided by the gloves' producer. Recommended: Nitrile rubber or Natural rubber.

Body protection: Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection



Provide adequate ventilation if fumes or vapours are likely to be evolved to ensure that the defined occupational exposure limit is not exceeded. A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Thermal hazards

Not applicable.

8.2.3 Environmental Exposure Controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Colourless liquid
Odour	Mild odour
Odour threshold	Not available.
pH	1.3 @ 20°C (68°F)
Melting point/freezing point	0°C (32°F)
Initial boiling point and boiling range	100°C (212°F)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	19 mm Hg @ 20°C (68°F)
Vapour density	Not available.
Relative density	1.08 (H ₂ O = 1) @ 20°C (68°F)
Solubility(ies)	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2 Other information

None known.

SECTION 10: STABILITY AND REACTIVITY

10.1	Stability and reactivity	Stable under normal conditions.
10.2	Chemical stability	Stable under normal conditions.
10.3	Possibility of hazardous reactions	Hazardous polymerisation will not occur.
10.4	Conditions to avoid	Keep away from heat and sources of ignition.
10.5	Incompatible materials	Keep away from: Strong oxidising agents, Acids and Alkalis.
10.6	Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Oxides of carbon, Oxides of nitrogen and Aldehydes.

SAFETY DATA SHEET

Revision: 1.0 Date: 21.10.2015

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

www.vishaypg.com

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects (Substances in preparations / mixtures)

Acute toxicity

Ingestion

Based on available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.

Inhalation

Based on available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.

Skin Contact

Based on available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.

Skin corrosion/irritation

Skin Corr. 1A: Causes severe skin burns.

Serious eye damage/irritation

Skin Corr. 1A: Causes severe eye damage.

Respiratory or skin sensitization

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT - single exposure

Based on available data, the classification criteria are not met.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2 Other information

Likely routes of exposure

Inhalation

Yes

Ingestion

Accidental

Skin Contact

Yes

Further Carcinogenicity Information

NTP Report on Carcinogens

None of the components are listed.

IARC Monographs

None of the components are listed in Groups 1 or 2.

Regulated by OSHA as a Carcinogen

None of the components are listed.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Based on available data, the classification criteria are not met.
Estimated Mixture LC50 > 100 mg/l (Fish)

12.2 Persistence and degradability

Part of the components are biodegradable.

12.3 Bioaccumulative potential

The product has low potential for bioaccumulation.

12.4 Mobility in soil

No data for the mixture as a whole.

12.5 Other adverse effects

Not classified as PBT or vPvB. None of the substances in this product fulfil the criteria for being regarded as a PBT or vPvB substance.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not release undiluted and unneutralised to the sewer. This material and its container must be disposed of as hazardous waste. Dispose of wastes in an approved waste disposal facility. Containers of this material may be hazardous when empty since they retain product residue. Dispose of contents in accordance with local, state or national legislation. Recycle only completely emptied packaging.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR/RID / IMDG / IATA

1760

14.2 UN Proper Shipping Name

CORROSIVE LIQUID, N.O.S. (L-Glutamic acid, hydrochloride)

14.3 Transport hazard class(es)

8

14.4 Packing group

I

SAFETY DATA SHEET

Revision: 1.0 Date: 21.10.2015

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

www.vishaypg.com

14.5	Environmental hazards	Not classified as a Marine Pollutant./ Environmentally hazardous substance
14.6	Special precautions for user	See Section: 2
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
14.8	Additional Information	None.

SECTION 15: REGULATORY INFORMATION

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1	U.S. Federal Regulations	
	TSCA Inventory Status	All of the components are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA).
15.1.2	US State Regulations	None known.
15.1.2	European regulations	
	Substance(s) of Very High Concern (SVHCs)	None.
	Authorisations and/or Restrictions On Use	None.
	Wassergefährdungsklasse (Germany)	Water hazard class: 1
15.2	Chemical Safety Assessment	Not available.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

Version 1.0
Date of Preparation 21.10.15

References: Existing Safety Data Sheet (SDS), Existing ECHA registration(s) for Urea (CAS# 57-13-6), and the Classification and Labelling Inventory for L-Glutamic acid, hydrochloride (CAS# 138-15-8).

GHS Classification of the substance or mixture	Classification Procedure
Skin Corr. 1A; H314	Threshold Calculation/ Mixture pH @ 20°C

LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists
LTEL: Long Term Exposure Limit
STEL: Short Term Exposure Limit
DNEL: Derived No Effect Level
PEL: Permissible Exposure Limit

PNEC: Predicted No Effect Concentration
PBT: Persistent, Bioaccumulative and Toxic
TLV: Threshold Limit Value
vPvB: very Persistent and very Bioaccumulative

Hazard Statement(s)

H314: Causes severe skin burns and eye damage.

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Disclaimers

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Vishay Precision Group gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Vishay Precision Group accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.

Annex to the extended Safety Data Sheet (eSDS)

No information available.

Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Vishay Precision Group, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "VPG"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

The product specifications do not expand or otherwise modify VPG's terms and conditions of purchase, including but not limited to, the warranty expressed therein.

VPG makes no warranty, representation or guarantee other than as set forth in the terms and conditions of purchase. **To the maximum extent permitted by applicable law, VPG disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.**

Information provided in datasheets and/or specifications may vary from actual results in different applications and performance may vary over time. Statements regarding the suitability of products for certain types of applications are based on VPG's knowledge of typical requirements that are often placed on VPG products. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. You should ensure you have the current version of the relevant information by contacting VPG prior to performing installation or use of the product, such as on our website at vpgsensors.com.

No license, express, implied, or otherwise, to any intellectual property rights is granted by this document, or by any conduct of VPG.

The products shown herein are not designed for use in life-saving or life-sustaining applications unless otherwise expressly indicated. Customers using or selling VPG products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify VPG for any damages arising or resulting from such use or sale. Please contact authorized VPG personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

Copyright Vishay Precision Group, Inc., 2014. All rights reserved.