



MATERIAL SAFETY DATA SHEET



SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: QF-LI Flux

April 13, 2010

Vishay Measurements Group, Inc.
Post Office Box 27777
Raleigh, NC 27611

919-365-3800

CHEMTREC 1-800-424-9300 (U.S.)
703-527-3887 (Outside U.S.)

NOTE: CHEMTREC numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

SECTION 2: HAZARDOUS INGREDIENTS / IDENTITY INFORMATION

CAS NUMBER	CHEMICAL IDENTITY	%
7646-85-7	Zinc Chloride	25-45
7647-01-0	Hydrochloric Acid	15-25
12125-02-9	Ammonium Chloride	5-10
57-55-6	Propylene Glycol	1-10
7681-49-4	Sodium Fluoride	0.1-1.0

SECTION 3: HEALTH HAZARD DATA

Routes of Entry:

Inhalation: Yes Skin: Yes Ingestion: Yes

Health Hazards (Acute and Chronic): May cause burns and/or irritation to skin, eyes and respiratory system. May cause possible liver and kidney effects.

Carcinogenicity:
NTP: Not listed
IARC Monographs: Not listed
OSHA Regulated: Not listed

Signs and Symptoms of Exposure:

INHALATION: Corrosive to the respiratory system. May cause severe irritation or burns. Exposure to decomposition products may cause a health hazard. Exposure can cause lung irritation, chest pain and edema which may be fatal.

EYE CONTACT: Corrosive to eyes. Causes burns. Direct contact with the eyes can cause irreversible damage, including blindness.

SKIN CONTACT: Corrosive to skin. Causes burns. May cause blistering, redness, itching, swelling, pain.

INGESTION: Corrosive to the digestive system. May cause burns to mouth, throat and stomach. Adverse symptoms may include nausea or vomiting and stomach pains. Ingestion may cause gastrointestinal irritation and diarrhea.

Conditions Generally Aggravated by Exposure: Pre-existing digestive disorders and disorders involving lungs, cardiovascular system, upper respiratory tract, skin, eye, blood, kidneys, liver, central nervous system, pancreas.

SECTION 4: EMERGENCY AND FIRST AID PROCEDURES
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INHALATION: Get medical attention immediately. Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

EYE CONTACT: Get immediate medical attention. Immediately flush eyes with plenty of water for at least 30 minutes while holding upper and lower eyelids open. Check for and remove contact lens.

SKIN CONTACT: Get immediate medical attention. Wash affected area with soap and water. Remove contaminated clothing and shoes. Launder and completely clean contaminated clothing and shoes before reuse.

INGESTION: Seek medical attention immediately. Wash mouth out with water. Do NOT induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person.

SECTION 5: FIRE AND EXPLOSION HAZARD DATA
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Flash Point (Method Used): Not available

Flammable limits: LEL: Not established UEL: Not established

Extinguishing Media: Use media appropriate for surrounding fire.

Special Firefighting Procedures: Promptly isolate the area. Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

Unusual Fire and Explosion Hazards: None known.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is released or spilled: Exposure to the spilled material may be irritating or harmful. Wear personal protective equipment. Collect and store spilled material in a sealed container until it can be disposed of safely. Do not allow material to enter soil, waterways, drains and sewers.

SECTION 7: EXPOSURE CONTROLS -- PERSONAL PROTECTION

Respiratory Protection: Use a properly fitted, air-purifying or air-fed respirator complying with approved standards if risk assessment indicates this is necessary.

Ventilation: Local exhaust ventilation, process enclosures or other engineering controls are necessary when handling or using this product to avoid overexposure. Ventilation is required to maintain operator exposure below published exposure limits.

Protective Gloves: Wear chemical and acid resistant gloves.

Eye Protection: Wear chemical resistant safety glasses with sideshields when handling this product. Do not wear contact lenses.

Other Protective Clothing or Equipment: Where contact is likely, wear chemical resistant gloves, a chemical suit, rubber boots, and chemical safety goggles, plus a face shield.

Work / Hygienic Practices: Wash thoroughly after handling and before eating, drinking, or smoking.

SECTION 8: HANDLING AND STORAGE

Precautions to be taken in handling and storing: Harmful or irritating material. Avoid contact. Avoid breathing vapors. Use in well ventilated area. Store in a tightly closed container. Store in a cool dry place.

Other Precautions: Keep away from food and drinking water.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	420°F (-215°C)
Vapor Pressure (mmHg):	1.0
Vapor Density (Air = 1):	Unknown
Specific Gravity (H₂O = 1):	1.33
Melting Point:	550-622°F (290-328°C)
Evaporation Rate (BuAc = 1):	<1
Volatile Organic Compounds:	30%
Solubility in Water:	Appreciable

Appearance and Odor: Clear odorless liquid.

SECTION 10: STABILITY AND REACTIVITY DATA

Stability: Stable under normal conditions of use.

Conditions to Avoid: Contamination; elevated temperatures.

Incompatibility (Materials to Avoid): Strong oxidizing agents; acids; hydrogen cyanide.

Hazardous Decomposition or By-products: Carbon monoxide, carbon dioxide, ammonia, toxic fumes, toxic gases, chlorine containing gases.

Hazardous Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Zinc Chloride

OSHA PEL:	1 mg/m ³ TWA
ACGIH TLV:	1 mg/m ³ TWA (2 mg/ m ³ STEL)
OTHER:	Oral LD ₅₀ (Rat): 350 mg/kg Oral LD ₅₀ (Mouse): 329 mg/kg

Hydrochloric Acid

OSHA PEL:	7 mg/m ³ TWA (5 ppm Ceiling)
ACGIH TLV:	7 mg/m ³ TWA (5 ppm Ceiling)
OTHER:	Inhalation LC ₅₀ (Rat): 3124 ppm/1 hour Oral LD ₅₀ (Rabbit): 900 mg/kg

Ammonium Chloride

OSHA PEL:	10 mg/m ³ TWA (20 mg/ m ³ STEL)
ACGIH TLV:	Oral LD ₅₀ (Rat): 1650 mg/kg
OTHER:	Oral LD ₅₀ (Mouse): 1300 mg/kg

Propylene Glycol

OSHA PEL:	10 mg/m ³
ACGIH TLV:	NE
OTHER:	NE

Sodium Fluoride

OSHA PEL:	2.5 mg/m ³
ACGIH TLV:	2.5 mg/m ³
OTHER:	NE

SECTION 12: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of in accordance with local, state, and federal environmental regulations.

SECTION 13: TRANSPORTATION INFORMATION

SHIPPING NAME	CLASS PACKING GROUP	UN NUMBER
Corrosive Liquid, Acidic, Inorganic, N.O.S. (Hydrochloric Acid, Zinc Chloride)	8	II 3264

SECTION 14: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION:

This product contains a toxic chemical or chemicals (as listed below) subject to the reporting requirements of Section 313 Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

CAS NUMBER	CHEMICAL NAME	% BY WEIGHT
7647-01-0	Hydrochloric Acid	15-25 %

TSCA NOTIFICATION:

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA).

SECTION 15: OTHER INFORMATION

To the best of our knowledge, the information provided above meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4) for a mixture of hazardous chemicals which has not been tested as a whole. The data provided on this Material Safety Data Sheet is from manufacturers of the original components. Micro-Measurements specifically disclaims any and all form of liability and/or responsibility for the application of this product.