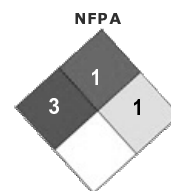


Personal Protective Equipment				WHMIS Pictograms		DOT Pictograms
						
Chemical Splash Goggles	Safety Glasses	Protective Gloves	Face shield	Corrosive Material	D2B Toxic	Corrosive

## SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: **2220-VF**  
 Product Code: 2220-VF  
 MSDS Manufacturer Number: 2220-VF  
 Product Use/Restriction: Soldering flux  
 Manufacturer Name: Kester  
 Address: 800 W. Thorndale Avenue  
 Itasca, IL 60143  
 General Phone Number: (630)-616-4000  
 Customer Service Phone Number: (800)-2 KESTER (253-7837)  
 CHEMTREC: For emergencies in the US, call CHEMTREC: 800-424-9300 Outside of the U.S. and Canada: (703) 527-3887  
 Website: msds@kester.com  
 MSDS Creation Date: August 15, 2008  
 MSDS Revision Date: September 30, 2012  
 MSDS Format: According to ANSI Z400.1-2004



HMIS	
Health Hazard	3
Fire Hazard	1
Reactivity	1
Personal Protection	x

## SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent	EC Num.
Glycerine	56-81-5	1 - 5 by weight	
Guanidine Hydrochloride	50-01-1	5 - 10 by weight	
Polyalkylene glycol	Proprietary	10 - 30 by weight	
Non Hazardous	N/A	60 - 100 by weight	
Proprietary ingredient(s)	Proprietary	5 - 10 by weight	

## SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview: DANGER! Corrosive. Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.  
 Route of Exposure: Eyes. Skin. Inhalation. Ingestion.  
 Potential Health Effects:  
 Acute Health Effects: Corrosive. Causes burns.  
 Eye: Corrosive. Will cause eye burns and permanent tissue damage.  
 Skin: Contact causes severe skin irritation and possible burns. may cause permanent skin damage.  
 Inhalation: May cause severe respiratory system irritation.  
 Ingestion: Harmful if swallowed. Corrosive to the gastrointestinal tract. Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.  
 Chronic Health Effects: Prolonged skin contact causes burns. Repeated or prolonged inhalation may cause toxic effects.  
 Signs/Symptoms: Overexposure can cause headaches, dizziness, nausea, and vomiting.  
 Target Organs: Eyes. Skin. Respiratory system. Digestive system.  
 Aggravation of Pre-Existing Conditions: May aggravate pre-existing respiratory disorders, allergy, eczema, or skin conditions.

## SECTION 4 - FIRST AID MEASURES

medical attention, if irritation or symptoms or overexposure persists.  
Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes.  
Get medical attention if irritation develops or persists.

Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

## SECTION 5 - FIRE FIGHTING MEASURES

Flash Point:	Not applicable.
Auto Ignition Temperature:	> 260 °C (> 500 °F)
Lower Flammable/Explosive Limit:	Not applicable.
Upper Flammable/Explosive Limit:	Not applicable.
Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, dry chemical, or water fog or spray when fighting fires involving this material.
Unsuitable Media:	Do not use a solid water stream as it may scatter and spread fire.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.
Hazardous Combustion Byproducts:	Oxides of carbon, oxides of nitrogen, aliphatic aldehydes, and other organic substances may be formed during combustion..

### **NFPA Ratings:**

NFPA Health:	3
NFPA Flammability:	1
NFPA Reactivity:	1

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area. Avoid breathing vapor, aerosol or mist. Avoid contact with skin, eyes and clothing.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Methods for containment:	Contain spills with an inert absorbent material such as soil, sand or oil dry.
Methods for cleanup:	Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section.

## SECTION 7 - HANDLING and STORAGE

Handling:	Corrosive. Use proper personal protective equipment as listed in section 8. Use with adequate ventilation. Avoid breathing vapor and fumes. Use only in accordance with directions.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use.
Hygiene Practices:	Wash thoroughly after handling. Avoid inhaling vapors, mists, or fumes.

## SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Eye/Face Protection:	Tightly fitting safety goggles. Wear a face shield also when splash hazard exist.
Hand Protection Description:	Wear appropriate protective gloves. Consult glove manufacturer's data for permeability data. Nitrile rubber or natural rubber gloves are recommended.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances

uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Other Protective:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower

PPE Pictograms:



#### EXPOSURE GUIDELINES

##### **Glycerine:**

Guideline ACGIH:

TLV-TWA: 10 mg/m<sup>3</sup>

Guideline OSHA:

PEL-TWA: 5 mg/m<sup>3</sup>

#### SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid.
Color:	Amber
Odor:	Mild chemical.
Boiling Point:	100 °C (212 °F)
Melting Point:	Not determined.
Density:	1.05500 g/cm <sup>3</sup> @ 20°C (68°F)
Vapor Pressure:	23.0 hPa (17 mm Hg) @ 20°C (68°F)
pH:	< 2.0 @ 20°C (68°F)
Flash Point:	Not applicable.
Auto Ignition Temperature:	> 260 °C (> 500 °F)

#### SECTION 10 - STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Not reported.
Conditions to Avoid:	Heat, flames, incompatible materials, freezing or temperatures below 32 deg. F.
Incompatible Materials:	Oxidizing agents. Strong acids and alkalis.
Special Decomposition Products:	Carbon monoxide and carbon dioxide Hydrogen chloride (HCl) Nitrogen oxides (NOx)

#### SECTION 11 - TOXICOLOGICAL INFORMATION

##### **Glycerine:**

RTECS Number:	MA8050000
Eye:	Eye - Rabbit Standard Draize test.: 500 mg/24H (RTECS)
Skin:	Administration onto the skin - Rabbit Standard Draize test.: 500 mg/24H (RTECS)
Ingestion:	Oral - Rat LD50: 12600 mg/kg [Behavioral - General anesthetic Behavioral - Muscle weakness Liver - Other changes] Oral - Mouse LD50: 4090 mg/kg [Details of toxic effects not reported other than lethal dose value] Oral - Rat LD50: 12600 mg/kg [Details of toxic effects not reported other than lethal dose value] (RTECS)

##### **Guanidine Hydrochloride:**

RTECS Number:	MF4300000
Eye:	Eye - Rabbit Standard Draize test.: 81400 ug [Moderate] (RTECS)
Skin:	Administration onto the skin - Rabbit Standard Draize test.: 500 mg/24H [severe] (RTECS)
Ingestion:	Oral - Rat LD50 : 475 mg/kg [Behavioral - Altered sleep time (including change in righting reflex) Behavioral - Excitement Gastrointestinal - Hypermotility, diarrhea] Oral - Mouse LD50 : 571 mg/kg [Behavioral - Altered sleep time (including change in righting reflex) Behavioral - Muscle contraction or spasticity Behavioral - Irritability] (RTECS)

##### **Non Hazardous:**

RTECS Number:	ZC0110000
Ingestion:	Oral - Rat LD50 : >90 mL/kg [Details of toxic effects not reported other than lethal dose value] (RTECS)


**SECTION 12 - ECOLOGICAL INFORMATION**

Ecotoxicity: No ecotoxicity data was found for the product.  
Environmental Fate: No environmental information found for this product.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.

**SECTION 14 - TRANSPORT INFORMATION**

DOT Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Hydroxyacetic acid)  
DOT UN Number: UN3265  
DOT Hazard Class: 8  
DOT Packing Group: II  
IATA Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Hydroxyacetic acid)  
IATA UN Number: UN3265  
IATA Hazard Class: 8  
IATA Packing Group: II  
DOT Pictograms:   
IMDG UN Number: UN3265  
IMDG Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Hydroxyacetic acid)  
IMDG Hazard Class: 8  
IMDG Packing Group: II  
RID UN Number: UN3265  
RID Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Hydroxyacetic acid)  
RID Hazard Class: 8  
RID Packing Group: II

**SECTION 15 - REGULATORY INFORMATION**

Canada Reg. Status: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.

Canada WHMIS: Controlled - Class E - Corrosive material  
Controlled - Class: D2B Toxic

**Glycerine :**

TSCA Inventory Status: Listed  
Canada DSL: Listed

**Guanidine Hydrochloride :**

TSCA Inventory Status: Listed  
Canada DSL: Listed

**Non Hazardous :**

TSCA Inventory Status: Listed  
Canada DSL: Listed

GHS Pictograms:

**SECTION 16 - ADDITIONAL INFORMATION**

General Use: Soldering flux  
HMIS Health Hazard: 3  
HMIS Fire Hazard: 1

MSDS Creation Date: August 15, 2008

MSDS Revision Date: September 30, 2012

Disclaimer: The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.

Copyright© 1996-2011 Actio Corporation. All Rights Reserved.