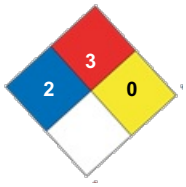
Personal Protective Equipment			WHMIS Pictograms		GHS Pictograms
					
Chemical Splash Goggles	Safety Glasses	Protective Gloves	Flammable	D2B Toxic	Highly flammable liquid and vapour

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**2331-ZX Flux Pen**
Product Code:	2331ZX
MSDS Manufacturer Number:	2331-ZX
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)-2KESTER (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 17, 2009
GHS Class:	Highly flammable liquid and vapour

NFPA



HMIS

Health Hazard	2
Fire Hazard	3
Reactivity	0
Personal Protection	x

* Chronic Health Effects

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent	EC Num.
Non hazardous	N/A	1 - 5 by weight	
Glycerine	56-81-5	10 - 30 by weight	
Proprietary ingredient(s)	Proprietary	10 - 30 by weight	
Isopropyl Alcohol	67-63-0	60 - 100 by weight	
L(+) Lactic Acid aqueous solution	79-33-4	1 - 5 by weight	
Oxirane, methyl-, polymer with axirane	9003-11-6	5 - 10 by weight	

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:	DANGER! Flammable. Severe Irritant. Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.
Route of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Eye:	Eye contact may cause severe irritation, redness, tearing, and blurred vision. Smoke during soldering can cause eye irritation.
Skin:	Causes severe skin irritation. May cause permanent skin damage.
Inhalation:	Inhalation of vapors, fumes or mists of the product causes severe respiratory system irritation.
Ingestion:	Harmful if swallowed. Ingestion can cause nausea, vomiting, diarrhea and gastrointestinal irritation.
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

Eye Contact:	Immediately flush eyes with plenty of water for 15 to 20 minutes. Get medical attention, if irritation or symptoms of overexposure persists.
Skin Contact:	Immediately wash skin with soap and plenty of water. 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:	18 °C (64 °F)
Auto Ignition Temperature:	370.0 °C (698 °F)
Lower Flammable/Explosive Limit:	0.9 Vol %
Upper Flammable/Explosive Limit:	12.0 Vol %
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.. Hydrogen chloride (HCl)

NFPA Ratings:

NFPA Health:	2
NFPA Flammability:	3
NFPA Reactivity:	0

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:	Remove all sources of ignition. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal.

SECTION 7 - HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor and fumes. Use only in accordance with directions. To reduce potential for static discharge, bond and ground containers when transferring material.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use.
Special Handling Procedures:	DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal container.
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 where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. 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.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

EXPOSURE GUIDELINES

Glycerine :

Guideline ACGIH:	TLV-TWA: 10 mg/m3
Guideline OSHA:	PEL-TWA: 5 mg/m3

Isopropyl Alcohol :

Guideline ACGIH:	TLV-STEL: 400 ppm TLV-STEL: 400 ppm
Guideline OSHA:	PEL-TWA: 400 ppm

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid.
Color:	amber
Odor:	Alcohol-like
Boiling Point:	82 °C (180 °F)
Melting Point:	Not determined.
Density:	0.899 g/cm³ (at 20 °C (68 °F))
Vapor Pressure:	33 hPa (25 mm Hg) (at 20 °C (68 °F))
pH:	6.7 (at 20 °C (68 °F))
Flash Point:	18 °C (64 °F)
Auto Ignition Temperature:	370.0 °C (698 °F)

SECTION 10 - STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Not reported.
Conditions to Avoid:	Keep away from heat, ignition sources and incompatible materials.
Incompatible Materials:	Oxidizing agents. Strong acids and alkalis.
Special Decomposition Products:	Carbon monoxide and carbon dioxide Hydrogen chloride (HCl) Nitrogen oxides

SECTION 11 - TOXICOLOGICAL INFORMATION

Non hazardous :

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

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)

Isopropyl Alcohol :

RTECS Number:	NT8050000
Eye:	Eye - Rabbit Standard Draize test: 100 mg Eye - Rabbit Standard Draize test: 10 mg Eye - Rabbit Standard Draize test: 100 mg/24H (RTECS)
Skin:	Administration onto the skin - Rabbit Standard Draize test: 500 mg Administration onto the skin - Rabbit LD50: 12800 mg/kg [Details of toxic effects not reported other than lethal dose value.] (RTECS)
Inhalation:	Inhalation. - Rat LC50: 16000 ppm/8H [Details of toxic effects not reported other than lethal dose value.] Inhalation. - Mouse LC50: 53000 mg/m3 [Behavioral - general anesthetic Lungs, Thorax, or Respiration - other changes] Inhalation. - Rat LC50: 72600 mg/m3 [Behavioral - general anesthetic Lungs, Thorax, or Respiration - other changes] (RTECS)
Ingestion:	Oral - Rat LD50: 5045 mg/kg [Behavioral - altered sleep time (including change in righting reflex) Behavioral - somnolence (general depressed activity)] Oral - Mouse LD50: 3600 mg/kg [Behavioral - altered sleep time (including change in righting reflex) Behavioral - somnolence (general depressed activity)] Oral - Mouse LD50: 3600 mg/kg [Behavioral - general anesthetic] Oral - Rat LD50: 5000 mg/kg [Behavioral - general anesthetic] (RTECS)

L(+) Lactic Acid aqueous solution :

RTECS Number:	OD3100000

Oxirane, methyl-, polymer with axirane :

RTECS Number:	RR0545333

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.

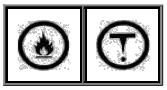
SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name:	Not Regulated.
DOT UN Number:	Not Regulated.
DOT Exemption:	Limited Quantity Exemption
IATA Shipping Name:	Not Regulated.
IATA UN Number:	Not Regulated.
IMDG UN NUmber :	Not Regulated.
IMDG Shipping Name :	Not Regulated.
RID UN Number :	Not Regulated.
RID Shipping Name :	Not Regulated.

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: B2 Flammable Liquid Controlled - Class: D2B Toxic
Non hazardous :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Glycerine :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Isopropyl Alcohol :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
L(+) Lactic Acid aqueous solution :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Oxirane, methyl-, polymer with axirane :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed

WHMIS Pictograms



SECTION 16 - ADDITIONAL INFORMATION

General Use:	Soldering flux
HMIS Health Hazard:	2
HMIS Fire Hazard:	3
HMIS Reactivity:	0
HMIS Personal Protection:	x
MSDS Creation Date:	August 15, 2008
MSDS Revision Date:	September 17, 2009
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 responsibilty 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.

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