Material Safety Data Sheet

SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Identifier As Used On Label: **951 LOW RESIDUE SOLDERING FLUX**

Product Use: Soldering flux for electronic assemblies when residue is not usually removed.

Manufacturer's Name and Address

KESTER SOLDER
DIVISION OF LITTON SYSTEMS, INC.
515 E. TOUHY AVENUE
DES PLAINES, IL 60018 USA

Supplier's Name and Address (if different from manufacturer)

Telephone Number For Information: (847) 297-1600

CHEMTREC 24-Hour Emergency Telephone Number: (800) 424-9300

NA = Not Applicable NE = Not Established UN = Unknown

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS 1 % or greater CARCINOGENS 0.1 % or greater	C.A.S. Number	Weight Percent	OSHA PEL ppm	ACGIH TLV STEL ppm	LD 50 ingested g / Kg	LC 50 inhaled ppm
2-Propanol	67-63-0	15	400	500	5.8 Rabbit	NE
Ethanol (denatured with 2-propanol)	64-17-5	73	1000	1000	7.1 Rat	20.0 Rat
Butyl acetate	123-86-4	7	150	200	13.1 Rat	2.0 Rat
Methanol	67-56-1	< 3	200 (skin)	250 (skin)	5.6 Rat	64.0 Rat
Carboxylic acids	68603-84-9	< 3	NE	NE	NE	NE
NON-HAZARDOUS INGREDIENTS						
Surfactants	9014-93-1	< 1				

OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
ACGIH: American Conference of Government Industrial Hygienists
TLV: Threshold Limit Values
STEL: Short-Term Exposure Limit
TWA: Time Weighted Average
C.A.S. Chemical Abstract Service

NOTES: * See Section 15 for U.S.A. Regulatory Information.

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Harmful if swallowed. High vapor concentrations may cause drowsiness. Flammable liquid and vapor.

ECC (Europe) DANGEROUS SUBSTANCES HAZARD DESIGNATION:

F Easily Flammable

R-PHRASES (Risks to Humans or the Environment):

R 11 - Highly flammable.

R 20/22 - Harmful by inhalation and if swallowed.

PRIMARY EXPOSURE:

Fumes during soldering will contain evaporated solvent and a small amount of organic acids.

PRIMARY ROUTES OF ENTRY: ○ Skin ◉ Eyes ◉ Inhalation ◉ Ingestion

TARGET ORGANS:

Eyes, skin, mucous membranes and respiratory system.

POTENTIAL HEALTH EFFECTS OF ACUTE (severe short-term) EXPOSURE:

INHALATION: Fumes during use may irritate mucous membranes and respiratory system. High concentrations can cause headache, dizziness, narcosis and nausea.

EYE CONTACT: Irritation from contact with liquid and smoke from soldering.

SKIN CONTACT: Possible local irritation by contact with flux or fumes.

INGESTION: May exhibit burning sensation in the digestive tract.

SKIN ABSORPTION: None.

POTENTIAL HEALTH EFFECTS OF CHRONIC (prolonged) EXPOSURE:

Prolonged or repeated contact with skin can cause a rash. Vapors can cause headache, dizziness, narcosis and irritation of mucous membranes. Central nervous system depression may be evidenced by giddiness, headache, dizziness and nausea. Repeated or prolonged contact with skin can cause defatting and drying of the skin which may result in inflammation and dermatitis.

Medical Conditions Generally Aggravated by Exposure:

Chemical hypersensitivity, asthma and other respiratory conditions, existing eye and skin disorders. Continued breathing of high concentrations of solvent vapors can affect the liver and central nervous system.

CARCINOGENICITY/ TERATOGENICITY / MUTAGENICITY: ○ NTP ○ OSHA ○ IARC ◉ Not Listed

See Sections 11 and 15 for additional information.

SECTION 4 - FIRST AID MEASURES

Seek medical assistance for further treatment, observation and support if needed.

EYE CONTACT: Flush eyes with plenty of water and get medical attention.

SKIN CONTACT: Wash thoroughly with soap and water.

INHALATION: Remove person from exposure to fumes.

INGESTION: Induce vomiting and get prompt medical attention.

SECTION 5 - FIRE FIGHTING MEASURES

Flammability: ○ No ◉ Yes Conditions to avoid: Sparks, open flames

Flash Point (T.O.C): 65 °F 18 °C Auto-Ignition Temperature: 750 °F 399 °C

Flammability Limits percent by volume in air: LEL: 2.0 UEL: 12.0

Extinguishing Means: ○ Water ◉ Carbon Dioxide ◉ Alcohol Foam ◉ Dry Chemical

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, aliphatic aldehydes.

Explosion Sensitivity: Impact - None Identified Static Discharge Sensitivity: ◉ Yes ○ No

Special Firefighting Procedures: Use water spray to cool fire exposed containers and control vapors.

Unusual Fire and Explosion Hazards: A moderate explosion hazard exists when exposed to heat or flames.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Spilled or Released:

Remove all ignition sources. Use caution to avoid breathing fumes. Prevent runoff into storm sewers and natural waterways. Absorb with clay, diatomaceous earth, dry sand other inert material. Do not use combustible materials such as sawdust. Place in a chemical waste container.

SECTION 7 - HANDLING AND STORAGE

Storage Precautions: Store away from sources of ignition.

Handling Precautions: Keep containers sealed when not in use. Open containers cautiously to allow venting of any internal pressure. Use grounding and bonding connection when transferring material to prevent static discharge, fire or explosion. Do not use a cutting torch on containers (even empty) as residual may explode.

Personal Precautions: Avoid breathing smoke / fumes generated during soldering. Avoid contact with eyes and skin.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

VENTILATION TO BE USED: Provide adequate exhaust ventilation (general and / or local) if necessary to meet exposure requirements. Local exhaust ventilation is preferred to minimize dispersion of smoke and fumes into the work area.

Respiratory Protection: When ventilation is not sufficient to remove fumes from the breathing zone, a safety approved respirator or self-contained breathing apparatus should be worn.

Protective Gloves: Neoprene or rubber gloves where necessary to avoid skin contact.

Eye Protection: Safety glasses or goggles should be used.

Other Protective Clothing and Equipment: An impermeable apron is advised to avoid contact through clothing.

Hygienic Work Practices: Wash hands thoroughly after handling chemicals or solder containing lead before eating or smoking.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State at 20 °C: Liquid

Boiling Point (760 mm Hg): 173 °F 78 °C

Vapor Pressure (mm Hg at 20 °C): 33

Vapor Density (air = 1): 2.1

Solubility in Water (% by weight): 91

pH: NA

Freezing Point (760 mm Hg): NE °F NE °C

Specific Gravity (water = 1 at 25 °C): 0.814

Melting Point: NA °F NA °C

Evaporation Rate (butyl acetate = 1): 1.7

Percent Volatile (by volume): 98 %

Volatile Organic Compound (VOC): 739 g / Liter

Odor Threshold: 200 ppm for 2-propanol
350 ppm for ethanol

Coefficient of Water / Oil Distribution: NE

Appearance and Odor: Colorless liquid with alcohol odor.

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability: ◉ Stable ○ Unstable Conditions to avoid: NE

Incompatibility (materials to avoid): Strong oxidizing materials.

Hazardous Decomposition Products:

When heated to soldering temperatures, the solvents are evaporated and organic materials may be thermally degraded to liberate aliphatic aldehydes and acids.

HAZARDOUS POLYMERIZATION:

○ May Occur
◉ Will Not Occur

Conditions to avoid: Not applicable.

SECTION 11 - TOXICOLOGICAL INFORMATION

EXPOSURE LIMITS: Not determined for the product. See Section 2 for ingredients.

No data available.

SECTION 12 - ECOLOGICAL INFORMATION

Keep out of waterways. Harmful to fish and other water organisms. Biodegradation is expected in a waste treatment plant. Emissions are photochemically reactive.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Methods:

According to local regulations, usually by incineration. EPA Hazardous Waste Number is D001. Hazard Class is Ignitable Waste.

CAUTION: Empty containers may contain product residue. Observe all label precautions.

SECTION 14 - TRANSPORT INFORMATION

DOT (U.S.A.): Alcohols N.O.S. (Ethanol, Isopropanol), 3, PG II, UN1987, Flammable Liquid

TDG (Canada): Packaging Group II, Class 3.2

SECTION 15 - REGULATORY INFORMATION

U.S.A.: All Chemical substances in this product are listed in the EPA (Environmental Protection Agency) TSCA (Toxic Substances Control Act) Inventory.

California Proposition 65: None

Canada: WHMIS (Workplace Hazardous Materials Information System) CLASSIFICATION:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Product Regulations (CPR) and the MSDS contains all the information required by the CPR.

B2 D1A D2B

Europe: European Council Directive 67/548/EEC

- DANGEROUS SUBSTANCES HAZARD CLASSIFICATION: F - Highly Flammable
- R-PHRASES (Risks to Humans or the Environment)

R 11 - Highly flammable.
R 20/22 - Harmful by inhalation and if swallowed.

- S-PHRASES (Safety Precautions for Storing, Handling and Using the Product)

S 2 - Keep out of reach of children.
S 7 - Keep container tightly closed.
S 16 - Keep away from sources of ignition - No Smoking.
S 23 - Do not breathe the fumes.
S 29 - Do not empty into drains.

SECTION 16 - OTHER INFORMATION

NFPA Rating:	Health:	1	Flammability:	3	Reactivity:	0	Special:
HMIS Rating:	Health:	1	Flammability:	3	Reactivity:	0	Personal Protection: X

PREPARATION INFORMATION

Revision Summary: Change of format and new data in most sections.

Prepared By: D. Bernier
Telephone Number: (847) 297-1600
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