

Material Safety Data Sheet

KESTER SOLDER

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MSDS Number: 1544

Date Prepared: 01-Aug-01

SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Identifier As Used On Label: **1544 ROSIN SOLDERING FLUX**

Product Use: Soldering flux for electrical or electronic applications.

Manufacturer's Name and Address

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

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

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 TWA ppm	LD 50 ingested g / Kg	LC 50 inhaled g / m ³
Ethanol (denatured with 2-propanol)	64-17-5	25	1000	1000	7.1 Rat	20.0 Rat
2-Butanol	78-92-2 *	25	100	150	6.5 Rat	NE
Rosin	8050-09-7	50	NE	NE	NE	NE

NON-HAZARDOUS INGREDIENTS

			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

Fumes during soldering are irritating to eyes and may cause headache and respiratory system irritation or damage. Prolonged or repeated exposure to rosin flux fumes during soldering may result in allergic reaction in a sensitive person, resulting in asthma symptoms. Harmful if swallowed. May cause allergic skin reaction. 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.
- R 42/43 - May cause sensitization by inhalation and skin contact.

PRIMARY EXPOSURE:

Fumes during soldering will contain evaporated solvent and droplets of rosin and/or organic decomposition products.

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: Flux fumes during soldering may cause irritation and damage of 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. Smoke during soldering will contain rosin which is an allergen that can cause eye irritation and respiratory system irritation and damage. Vapors can cause headache, dizziness, narcosis and irritation of mucous membranes.

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/ NTP OSHA IARC Not Listed

TERATOGENICITY / MUTAGENICITY: 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. Remove rosin from around eyes with a dilute ethanol solution.

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:** 720 °F 382 °C

Flammability Limits percent by volume in air: LEL: 2.5 UEL: 15.0

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. Storage at temperatures below 40 °F (5 °C) may result in precipitation of some rosin.

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	Specific Gravity (water = 1 at 25 °C): 0.926
Boiling Point (760 mm Hg): 173 °F 78 °C	Melting Point: NA °F NA °C
Vapor Pressure (mm Hg at 20 °C): 40	Evaporation Rate (butyl acetate = 1): 1.9
Vapor Density (air = 1): 1.8	Percent Volatile (by volume): 57 %
Solubility in Water (% by weight): 50	Volatile Organic Compound (VOC): 458 g / Liter
pH: NA	Odor Threshold: 350 ppm for ethanol 20 ppm for 2-butanol
Freezing Point (760 mm Hg): NE °F NE °C	Coefficient of Water / Oil Distribution: NE

Appearance and Odor: Dark amber 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, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes, acids and terpenes.

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

Rosin is an allergen. Prolonged or repeated exposure to fumes during soldering may result in allergic reaction in a sensitive person, resulting in eye and skin irritation and asthma symptoms.

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, 2-butanol), 3, PG I, UN 1987, 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.

*This chemical is subject to the reporting requirements of Section 313 of Title III of the USA Superfund Amendment and Reauthorization Act (SARA) of 1986 and 40 CFR, Part 372.

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
Xn - Harmful
- R-PHRASES (Risks to Humans or the Environment)

- R 11 - Highly flammable.
- R 20/22 - Harmful by inhalation and if swallowed.
- R 42/43 - May cause sensitization by inhalation and skin contact.

- 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.

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Telephone Number: (847) 297-1600

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The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester Solder 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 how to use a Material Safety Data Sheet as a source for Hazard information.