

GC Electronics

1801 Morgan Street
 Rockford, IL 61102
 Phone: (815) 968-9661
 Fax: (815) 968-9731
 www.gcelectronics.com

Product Name: Liquid Solder Flux

MSDS Number: 112
 Revision Date: 11/17/03
 Supersedes Date: 12/6/02

MATERIAL SAFETY DATA SHEET

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Product Type: Solder Flux
 Product Name: **Liquid Solder Flux**
 Part Number(s): **10-4202**
10-4216

Emergency Contact: **Chemtrec**
 Phone: **(800) 424-9300**

Section 1 – Identification of Product

Common Name: Liquid Solder Flux
 Chemical Name: Rosin Solder Flux
 Family Usage: Soldering Flux for Electrical or Electronic Applications

HMIS RATINGS		NFPA RATINGS			
Health	1	Health	1	Least	0
Flammability	3	Flammability	3	Slight	1
Reactivity	0	Reactivity	0	Moderate	2
Personal Protection	✓			High	3
				Extreme	4
				Gloves, Safety Glasses	B

Section 2 – Hazardous Ingredients/SARA III Information

Hazardous Ingredients 1% or greater Carcinogens 0.1% or greater	C.A.S. Number	Weight Percent	OSHA PEL ppm	ACGIH TLV STEL pppm	LD50 injested g/Kg	LC50 inhaled g/m ³
2-Propanol	67-63-0	59	400	500	5.8 Rabbit	NE
Rosin	8050-09-7	41	NE	NE	NE	NE

Notes: *All chemicals are subject to the reporting requirements of Section 313 of Title III of the U.S.A. Superfund Amendment and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Section 3 – Physical Data

Physical State at 20°C: Liquid
 Specific Gravity (water=1 at 25°C): 0.880
 Boiling Point (760 mm Hg): 180°F 82°C
 Melting Point: NA°F NA°C
 Vapor Pressure (mm Hg at 20°C): 33
 Evaporation Rate (butyl acetate=1): 1.8
 Vapor Density (air=1): 2.1
 Percent Volatile (by volume): 66%
 Solubility in Water (% by weight): 59
 Volatile Organic Compound (VOC): 522 g/Liter
 pH: NA

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Odor Threshold: 200 ppm for 2-propanol
 Freezing Point (760 mm Hg): NE°F NE°C
 Coefficient of Water/Oil Distribution: NE
 Appearance and Odor: Amber, liquid with alcohol odor

Section 4 – Fire and Explosion Hazards

Flammability: 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
 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 5– Health Hazard Data**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 Substance
 Hazard Designation:
 F=Easily Flammable

R-Phrases (Risks to Humans and the Environment):
 R11-Highly flammable.
 R20/22-Harmful by inhalation and if swallowed.
 R42/43-May cause sensitization by inhalation and skin contact.

Exposure Limits: Not determined for the product. See Section 2 for ingredients.
 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.

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.
 Skin Contact: Possible local irritation by contact with flux or fumes.
 Skin Absorption: None
 Eye Contact: Irritation from contact with liquid and smoke from soldering.
 Ingestion: May exhibit burning sensation in the digestive tract.

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Effects of Chronic (prolonged) Exposure

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

Skin Contact: Prolonged or repeated contact with skin can cause a rash.

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.

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 diluted 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 6- Reactivity Data

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 rosin may be thermally degraded to liberate aliphatic aldehydes, acids and terpenes.

Hazardous Polymerization: May Occur Will Not Occur

Conditions to Avoid: NE

Section 7- Spill or Leak Procedures**Procedures for Material Control**

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 or other inert material. Do not use combustible materials such as sawdust. Place in a chemical waste container. Keep out of waterways. Harmful to fish and other water organisms. Biodegradation is expected in a waste treatment plant. Emissions are photochemically reactive.

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

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Section 8 – Special Protection Information

Personal Protective Equipment

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 NIOSH 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:	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.
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 9 – Special Precautions

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
Precautions to be taken in handling and storage:	Store away from sources of ignition. 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 or containers (even empty) as residual may explode.
Personal Precautions:	Avoid breathing smoke/fumes generated during soldering. Avoid contact with eyes and skin.

Section 10 – Regulatory Information

DOT Classification:	Isopropanol
Hazard Class:	3
UN #:	UN1219
Packing Group:	II
Label:	Flammable Liquid
Description:	Soldering Flux
U.S.A.	All chemical substances in this product are listed in the EPA (Environmental Protection Agency) TSCA (Toxic Substances Control Act) Inventory.

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California Proposition 65: None

Canada: WHMIS (Workplace Hazardous Materials Information System) Classification:
 Packaging Group: II
 Hazard Class: 3.2

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 D2B NA = Not Applicable NE = Not Established UN = Unknown

Carcinogenicity: NTP OSHA IARC Not Listed

Hazard communication regulations, U.S.A. Occupational Safety and Health Act (OSHA) and Canada Workplace Hazardous Materials Information Systems (WHMIS), require that employees must be trained how to use a Material Safety Data Sheet as a source for Hazard information.

Europe: European Council Directive 67/548/EEC

Dangerous Substance Hazard Classification: F=Highly Flammable
 Xn=Harmful

R-Phrases (Risks to Humans or the Environment): R11=Highly flammable.
 R20/22=Harmful by inhalation and if swallowed.
 R42/43=May cause sensitization by inhalation and skin contact.

S-Phrases (Safely pre-cautions for storing, handling and using the product): S2=Keep out of reach of children
 S7=Keep containers tightly closed.
 S16=Keep away from sources of ignition-No Smoking.
 S23=Do not breathe the fumes.
 S29=Do not empty into drains.

Disclaimer

GC Electronics believes that the information contained herein is accurate and reliable as of the date of this material safety data sheet, but no representation guarantee or warranty, express or implied, is made as to the accuracy, reliability, or completeness of the information. Persons receiving this information are encouraged to make their own determination as to the information's suitability and completeness for their particular application. NO INFORMATION CONTAINED HEREIN CONSTITUTES A PRODUCT WARRANTY OF ANY KIND, WHETHER EXPRESS OR IMPLIED; AND ALL IMPLIED WARRANTIES OF MERCHANT ABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY GC ELECTRONICS CORPORATION.