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MSDS Number: 112
Revision Date: 12/12/2014
Supersedes Date: 6/18/2012

SAFETY DATA SHEET

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200. This Safety Data Sheet has been updated in accordance with the Globally Harmonized System (GHS).

Product Name: LIQUID SOLDER FLUX

SECTION 1- PRODUCT AND COMPANY IDENTIFICATION

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

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

Trade Name:	135
Common Name:	Liquid Solder Flux
Chemical Name:	Rosin Solder Flux
Family Usage:	Soldering Flux for Electrical or Electronic Applications
Description:	Mixture of the substances listed below with non-hazardous additions.

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:
Soldering Flux,
Professional Use of Solder
Application of the Substance / The Preparation:
Soldering Flux

SECTION 2- HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H336 May cause drowsiness or dizziness.

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SECTION 2- HAZARDS IDENTIFICATION (CONTINUED)

Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labeled according to the CLP regulation.
Hazard pictograms

GHS02 GHS07 GHS08

Signal word Danger

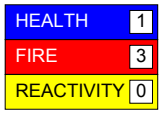
Hazard-determining components of labeling:
Isopropanol
Rosin
Hazard statements
H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H336 May cause drowsiness or dizziness.
Precautionary statements

P210	*Keep away from heat/sparks/open flames/hot surfaces. - No smoking.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection.*
P303+P361+P353	*IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/ shower.*
P305+P351+P338	*IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
P304+P340	*IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.*
P501	*Dispose of contents/container in accordance with local/regional/national/international regulations.*

Classification system:
NFPA ratings (scale 0 - 4)

Health = 1
Fire = 3
Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 1
Fire = 3
Reactivity = 0

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

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SECTION 3- COMPOSITION OF MIXTURE

Chemical characterization: Mixtures
Description: *Mixture of the substances listed below with nonhazardous additions.*

CAS No.	***Description***		***% Range***
CAS: 67-63-0 *EINECS: 200-661-7*	*Isopropanol*	*Flam. Liq. 2, H225* *Eye Irrit. 2A, H319; STOT SE 3, H336*	*50-65%*
CAS: 8050-09-7 *EINECS: 232-475-7*	*Rosin*	*Resp. Sens. 1B, H334* *Skin Sens. 1B, H317*	*40-50%*

Additional information:
This solder product does not contain any Substance of Very High Concern (SVHC) on the European Chemicals Agency (ECHA) candidate list.

SECTION 4- FIRST AID MEASURES

Description of first aid measures
General information: *Follow general first aid procedures.*
After inhalation: *Supply fresh air; consult doctor in case of complaints.*
After skin contact: *Immediately wash with water and soap and rinse thoroughly.*
After eye contact: *Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.*
After swallowing: *Seek immediate medical advice.*

Information for doctor:
Most important symptoms and effects, both acute and delayed No further relevant information available.
Indication of any immediate medical attention and special treatment needed No further relevant information available.

SECTION 5- FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing agents:
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
For safety reasons unsuitable extinguishing agents: *Water with full jet*
Special hazards arising from the substance or mixture
In case of fire, the following can be released:
Carbon monoxide (CO)
Nitrogen oxides (NOx)
Carbon dioxide (CO2)
Advice for firefighters
Protective equipment: *Wear self-contained respiratory protective device.*

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SECTION 6- ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
Environmental precautions: *Do not allow to enter sewers/ surface or ground water.*
Methods and material for containment and cleaning up:
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Absorb with clay, dry sand, or other inert material. Do not use combustible materials such as sawdust. Place in a chemical waste container.
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7- HANDLING AND STORAGE

Handling:
Precautions for safe handling
Store in cool, dry place in tightly closed receptacles.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Information about protection against explosions and fires:
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility: Store away from oxidizing agents.
Further information about storage conditions:
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Specific end use(s) *No further relevant information available.*

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SECTION 8- EXPOSURE CONTROLS / PERSONAL PROTECTION

Additional information about design of technical systems: *No further data; see item 7.*

Control parameters

Components with limit values that require monitoring at the workplace:	
67-63-0 Isopropanol	
PEL	*Long-term value: 980 mg/m³, 400 ppm*
REL	*Short-term value: 1225 mg/m³, 500 ppm* *Long-term value: 980 mg/m³, 400 ppm*
TLV	*Short-term value: 984 mg/m³, 400 ppm* *Long-term value: 492 mg/m³, 200 ppm* *BEI*
8050-09-7 Rosin	
TLV	*(SEN); L NIC-DSEN, RSEN*

Additional information:
PEL = Permissible Exposure Limit (OSHA)
TLV= Threshold Limit Value (ACGIH)
OSHA= Occupational Safety and Health Administration
ACGIH= American Conference of Governmental Industrial Hygienists

Exposure controls
Personal protective equipment:
General protective and hygienic measures:
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Breathing equipment:
Exposure Controls: Use appropriate engineering control such as process enclosures, local exhaust ventilation to control airborne levels below recommended exposure limits.
When ventilation is not sufficient to remove airborne levels from the breathing zone, a NIOSH safety approved respirator or self-contained breathing apparatus should be worn. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Protection of hands:

Protective gloves

Material of gloves:
Nitrile rubber, NBR
Natural rubber, NR
Penetration time of glove material:
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:
Safety glasses

Face Shield with Safety Glasses when refilling.

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Product Name: LIQUID SOLDER FLUX

SECTION 9- PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
General Information
Appearance:
Form: *Liquid*
Color: *Amber colored*
Odor: *Alcohol-like*

pH-value: *Not determined.*

Change in condition
Melting point/Melting range: *Undetermined.*
Boiling point/Boiling range: *82 °C (180 °F)*

Flash point: *18 °C (64 °F)*

Ignition temperature: *399 °C (750 °F)*

Auto igniting: *Product is not selfigniting.*

Danger of explosion: *Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*

Explosion limits:
Lower: *2.0 Vol %*
Upper: *12.0 Vol %*

Vapor pressure at 20 °C (68 °F): *43 hPa (32 mm Hg)*

Density at 20 °C (68 °F): *0.88 g/cm³ (7.344 lbs/gal)*

Solubility in / Miscibility with
Water: *Partly miscible.*

Solvent content:
Organic solvents: *VOC Content 522 g/L*

SECTION 10- STABILITY AND REACTIVITY

Reactivity
Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
Possibility of hazardous reactions *No dangerous reactions known.*
Conditions to avoid *No further relevant information available.*
Incompatible materials: *Strong acids, strong oxidizers.*
Hazardous decomposition products:
Carbon monoxide and carbon dioxide
When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes and acids.

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Product Name: LIQUID SOLDER FLUX

SECTION 11- TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity:

LD/LC50 values that are relevant for classification:		
67-63-0 Isopropanol		
Oral	*LD50*	*5045 mg/kg (rat)*
Dermal	*LD50*	*12800 mg/kg (rabbit)*
Inhalative	*LC50/4 h*	*30 mg/l (rat)*
8050-09-7 Rosin		
Oral	*LD50*	*2.2 mg/kg (mouse)* *3.0 mg/kg (rat)*

Primary irritant effect:
on the skin:
Irritant to skin and mucous membranes.
Possible local irritation by contact with flux or fumes.
on the eye:
Irritating effect.
Smoke during soldering can cause eye irritation.
through inhalation:
Vapors during use may irritate mucous membranes and respiratory system. High concentrations can cause headache, dizziness, and nausea.
through ingestion: May cause gastrointestinal irritation.
Sensitization:
Sensitization possible through inhalation.
Sensitization possible through skin contact.
Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)		
67-63-0	*Isopropanol*	*3*

NTP (National Toxicology Program)
None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

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SECTION 12- ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity: *No further relevant information available.*
Additional ecological information:
General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Results of PBT and vPvB assessment
PBT: *Not applicable.*
vPvB: *Not applicable.*

SECTION 13- DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation:
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Disposal must be made according to official regulations.

Uncleaned packagings:
Recommendation: *Disposal must be made according to official regulations.*

SECTION 14- TRANPORT INFORMATION

UN-Number
DOT, ADR, IMDG, IATA — *UN1219*

UN proper shipping name
DOT, ADR, IMDG, IATA — *UN1219, Isopropanol (Isopropyl alcohol), mixture, 3, II*
Transport hazard class(es)

DOT

Class — *3 Flammable liquids.*
Label — *3*

ADR, IMDG, IATA

Class — *3 Flammable liquids*
Label — *3*
Packing group
DOT, IMDG, IATA — *II*
Marine pollutant: — *No*
Special precautions for user — *Not applicable.*

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SECTION 14- TRANPORT INFORMATION (CONTINUED)

Danger code (Kemler):	*33*
EMS Number:	*F-E,S-D*
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	*Not applicable.*
UN "Model Regulation":	*UN1219, Isopropanol (Isopropyl alcohol), mixture, 3, II*

SECTION 15- REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

USA The following information relates to product regulation specific to the USA.

SARA (Superfund Amendments and Reauthorization Act)

Section 355 (extremely hazardous substances):
None of the ingredient is listed.
Section 313 (Specific toxic chemical listings):
None of the ingredients is listed.
TSCA (Toxic Substances Control Act): Kester certifies that all components listed below for the subject finished product are on the TSCA Inventory of Chemical Substances and are not subject to any chemical specific regulation under TSCA Section 12(b) export notification requirements delineated at 40 CFR part 707, subpart D.
All ingredients are listed or exempt from listing.

California Proposition 65

Chemicals known to cause cancer:
None of the ingredients is listed.
Chemicals known to cause reproductive toxicity:
None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)
None of the ingredients is listed.
NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

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SECTION 15- REGULATORY INFORMATION (CONTINUED)

CANADA: Not classified.
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labeled according to the CLP regulation.
Hazard pictograms

GHS02 GHS07 GHS08

Signal word Danger

Hazard-determining components of labeling:
Isopropanol
Rosin
Hazard statements
H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H336 May cause drowsiness or dizziness.
Precautionary statements

P210	*Keep away from heat/sparks/open flames/hot surfaces. - No smoking.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection.*
P303+P361+P353	*IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/ shower.*
P305+P351+P338	*IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
P304+P340	*IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.*
P501	*Dispose of contents/container in accordance with local/regional/national/international regulations.*

Chemical safety assessment: *A Chemical Safety Assessment has not been carried out.*

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SECTION 16- 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 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.

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1
Resp. Sens. 1B: Sensitisation - Respirat., Hazard Category 1B
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
Skin Sens. 1B: Sensitisation - Skin, Hazard Category 1B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
**** Data compared to the previous version altered.***