SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Printing Date 04/22/2013 Version number 9 Reviewed on 04/22/2013

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1 PRODUCT AND COMPANY IDENTIFICATION

***Trade name:* 951 Soldering Flux**
Relevant identified uses of the substance or mixture and uses advised against *Professional use of solder*

Application of the substance / the preparation: Soldering flux

Details of the supplier of the safety data sheet
This Safety Data Sheet has been updated in accordance with the Globally Harmonized System (GHS).
Manufacturer/Supplier:
Kester
800 West Throndale Ave.
Itasca, IL 60143
Tel (630) 616-4000
Fax (630) 616-4044

Kester Components Pte Ltd
500 Chai Chee Lane
Singapore 469024
Tel: 65-64491133

Information department:
SDS Coordinator (630) 616-6844
Emergency telephone number:
CHEMTREC 24-Hour Emergency Response Telephone Number : (800) 424-9300
CHEMTREC 24-Hour Emergency Response (Outside US & Canada) Telephone Number : (703) 527-3887

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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 vapour.

GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

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

Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P285 In case of inadequate ventilation wear respiratory protection.

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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.*
P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

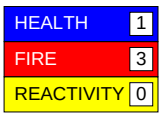
Hazard description:

WHMIS Hazard Symbols
B2 - Flammable liquid
D2B - Toxic material causing other toxic effects

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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3 COMPOSITION OF MIXTURE

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

CAS No.	Description		% Range
CAS: 64-17-5 EINECS: 200-578-6	ethanol	Flam. Liq. 2, H225	50-65%
CAS: 67-63-0 EINECS: 200-661-7	isopropanol	Flam. Liq. 2, H225 Eye Irrit. 2A, H319; STOT SE 3, H336	20-25%
CAS: 123-86-4 EINECS: 204-658-1	n-butyl acetate	Flam. Liq. 3, H226 STOT SE 3, H336	5-10%
CAS: 67-56-1 EINECS: 200-659-6	methanol	Flam. Liq. 2, H225 Acute Tox. 2, H330 STOT SE 1, H370	2.5-5.0%
CAS: 124-04-9 EINECS: 204-673-3	adipic acid	Eye Irrit. 2A, H319	1.0-2.5%

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

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4 FIRST AID MEASURES

Description of first aid measures
General information: *Take affected persons out into the fresh air.*

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After inhalation:
In case of unconsciousness place patient stably in side position for transportation.
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.

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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
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Nitrogen oxides (NOx)
Carbon monoxide (CO)
Advice for firefighters
Protective equipment: *Wear self-contained respiratory protective device.*

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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.

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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.

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Store in cool, dry conditions in well sealed receptacles.
Specific end use(s) *No further relevant information available.*

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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:	
64-17-5 ethanol	
PEL	*1900 mg/m³, 1000 ppm*
REL	*1900 mg/m³, 1000 ppm*
TLV	*Short-term value: 1880 mg/m³, 1000 ppm*
67-63-0 isopropanol	
PEL	*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*
123-86-4 n-butyl acetate	
PEL	*710 mg/m³, 150 ppm*
REL	*Short-term value: 950 mg/m³, 200 ppm* *Long-term value: 710 mg/m³, 150 ppm*
TLV	*Short-term value: 950 mg/m³, 200 ppm* *Long-term value: 713 mg/m³, 150 ppm*
67-56-1 methanol	
PEL	*260 mg/m³, 200 ppm*
REL	*Short-term value: 325 mg/m³, 250 ppm* *Long-term value: 260 mg/m³, 200 ppm* *Skin*
TLV	*Short-term value: 328 mg/m³, 250 ppm* *Long-term value: 262 mg/m³, 200 ppm* *Skin; BEI*
124-04-9 adipic acid	
TLV	*5 mg/m³*

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.

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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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9 PHYSICAL AND CHEMICAL PROPERTIES

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

pH-value: *Not determined.*

Change in condition
Melting point/Melting range: *Undetermined.*
Boiling point/Boiling range: *78 °C (172 °F)*

Flash point: *18 °C (64 °F)*

Ignition temperature: *370 °C (698 °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: *15.0 Vol %*

Vapor pressure at 20 °C (68 °F): *59 hPa (44 mm Hg)*

Density at 20 °C (68 °F): *0.81 g/cm³ (6.759 lbs/gal)*

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

Solvent content:
Organic solvents: *VOC: 792 g/L*

10 STABILITY AND REACTIVITY

Reactivity
Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

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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:
When heated to soldering temperatures, solvents will be evaporated and organic matierial may release aliphatic aldehydes and acids.

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11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity:

LD/LC50 values that are relevant for classification:		
67-56-1 methanol		
Oral	*LD50*	*5628 mg/kg (rat)*
Dermal	*LD50*	*15800 mg/kg (rabbit)*
64-17-5 ethanol		
Oral	*LD50*	*7060 mg/kg (rat)*
Inhalative	*LC50/4 h*	*20000 mg/l (rat)*
67-63-0 isopropanol		
Oral	*LD50*	*5045 mg/kg (rat)*
Dermal	*LD50*	*12800 mg/kg (rabbit)*
Inhalative	*LC50/4 h*	*30 mg/l (rat)*
123-86-4 n-butyl acetate		
Oral	*LD50*	*13100 mg/kg (rat)*
Dermal	*LD50*	*>5000 mg/kg (rabbit)*
Inhalative	*LC50/4 h*	*>21.0 mg/l (rat)*

Primary irritant effect:
on the skin: Irritant to skin and mucous membranes.
on the eye: Irritating effect.
through inhalation:
Vapors during use may irritate mucous membranes and respiratory system. High concentrations can cause headache, dizziness, narcosis, and nausea.
through ingestion: May cause gastrointestinal irritation.
Sensitization: Sensitization possible through inhalation.
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)		
64-17-5	*ethanol*	*1*
67-63-0	*isopropanol*	*3*

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

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.*

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vPvB: *Not applicable.*

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13 DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation: *Disposal must be made according to official regulations.*

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

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14 TRANSPORT INFORMATION

UN-Number
DOT, ADR, IMDG, IATA *UN1987*
UN proper shipping name
DOT, ADR, IMDG, IATA *UN1987, ALCOHOLS, N.O.S. (ETHANOL (ETHYL ALCOHOL), ISOPROPANOL (ISOPROPYL ALCOHOL))*

Transport hazard class(es)
Class *3 Flammable liquids.*
Label *3*

ADR, IMDG, IATA

Class *3 Flammable liquids*
Label *3*
Packing group
DOT, ADR, IMDG, IATA *II*
Environmental hazards:
Marine pollutant: *No*
Special precautions for user *Not applicable.*
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code *Not applicable.*
UN "Model Regulation": *UN1987, ALCOHOLS, N.O.S. (ETHANOL (ETHYL ALCOHOL), ISOPROPANOL (ISOPROPYL ALCOHOL)), 3, II*

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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):	
67-56-1	*methanol*

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.

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

CANADA:
Workplace Hazardous Materials Identification (WHMIS):
This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR) and the Safety Data Sheet (SDS) contains all of the information required by the CPR.
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labeled according to the CLP regulation.
Hazard pictograms

GHS02 GHS07

Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P285 In case of inadequate ventilation wear respiratory protection.
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.
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.*

16 OTHER INFORMATION

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.

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)
ICAO: International Civil Aviation Organization
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

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DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

**** Data compared to the previous version altered.***