

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

1 Identification

Trade name: 185 Soldering Flux**Relevant identified uses of the substance or mixture and uses advised against**Soldering Flux
Professional use of Solder**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**Kester Inc.
800 West Thorndale Avenue
Itasca, IL 60143 USA
Tel (630) 616-4000
Tel International 00 1 630 616-4000ITW Specialty Materials (Suzhou) Co., Ltd.
Heng Qiao Road
Wujiang Economic Development Zone
Suzhou, Jiangsu 215200 China
Tel +86 512 82060808Kester GmbH
Ganghofer Strasse 45
D-82216 Gernlinden Germany
Tel +49 (0) 8142 4785 0**Information department:** Product Compliance: EHS_Kester@kester.com**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

2 Hazard(s) identification

Classification of the substance or mixture

Flame

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

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.**Label elements****GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).**Hazard pictograms**

GHS02 GHS07

Signal word Danger

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

(Contd. of page 1)

Hazard-determining components of labeling:

Isopropanol
sec-butanol
Modified Rosin

Hazard statements

H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H336 May cause drowsiness or dizziness.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)








Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Description: Mixture of the substances listed below with nonhazardous additions.

| CAS No. | Description | % Range | |
|--------------|----------------|---|--------|
| CAS: 67-63-0 | Isopropanol |  Flam. Liq. 2, H225  Eye Irrit. 2A, H319; STOT SE 3, H336 | 40-55% |
| Trade Secret | Modified Rosin |  Skin Sens. 1, H317 | 10-25% |
| CAS: 78-92-2 | sec-butanol |  Flam. Liq. 3, H226  Eye Irrit. 2A, H319; STOT SE 3, H335-H336 | 10-25% |

4 First-aid measures

Description of first aid measures

General information: Follow general first aid procedures.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

(Contd. of page 2)

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.

5 Fire-fighting 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
 Nitrogen oxides (NO_x)
 In case of fire, the following can be released:
 Carbon monoxide (CO)
 Carbon dioxide (CO₂)
 Aliphatic aldehydes
Advice for firefighters
Protective equipment: No special measures required.

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:
 Dispose contaminated material as waste according to item 13.
 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.
Protective Action Criteria for Chemicals

PAC-1:

| | | |
|--------------|-------------|---------|
| CAS: 67-63-0 | Isopropanol | 400 ppm |
| CAS: 78-92-2 | sec-butanol | 150 ppm |

PAC-2:

| | | |
|--------------|-------------|-----------|
| CAS: 67-63-0 | Isopropanol | 2000* ppm |
| CAS: 78-92-2 | sec-butanol | 220 ppm |

PAC-3:

| | | |
|--------------|-------------|-------------|
| CAS: 67-63-0 | Isopropanol | 12000** ppm |
|--------------|-------------|-------------|

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

CAS: 78-92-2 | sec-butanol

(Contd. of page 3)
10000** ppm

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.

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:

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

CAS: 67-63-0 Isopropanol

| | |
|-----|--|
| PEL | Long-term value: 980 mg/m ³ , 400 ppm |
| REL | Short-term value: 1225 mg/m ³ , 500 ppm Long-term value: 980 mg/m ³ , 400 ppm |
| TLV | Short-term value: 984 mg/m ³ , 400 ppm Long-term value: 492 mg/m ³ , 200 ppm BEI |

CAS: 78-92-2 sec-butanol

| | |
|-----|---|
| PEL | Long-term value: 450 mg/m ³ , 150 ppm |
| REL | Short-term value: 455 mg/m ³ , 150 ppm Long-term value: 305 mg/m ³ , 100 ppm |
| TLV | Long-term value: 300 mg/m ³ , 100 ppm |

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

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

(Contd. of page 4)

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:

Not necessary if room is well-ventilated.

Use suitable respiratory protective device in case of insufficient ventilation.

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

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Color: Amber colored
Odor: Mild

pH-value: Not determined.

Change in condition

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: 82°C (179.6 °F)

Flash point: < 23°C (<73.4 °F)

Ignition temperature: 390°C (734 °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: 1.7Vol %
Upper: 12Vol %

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

(Contd. of page 5)

Vapor pressure at 20°C (68 °F): 43hPa (32.3 mm Hg)

Density at 20°C (68 °F): 0.88g/cm³ (7.34 lbs/gal)

Solubility in / Miscibility with Water: Partly miscible.

Solvent content:
Organic solvents: 64.0%
Water: 0.0%

Solids content: 36.0%

10 Stability and reactivity

Reactivity No further relevant information available.

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.

11 Toxicological information

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:

CAS: 67-63-0 Isopropanol

| | | |
|------------|----------|-----------------------|
| Oral | LD50 | 5,045 mg/kg (rat) |
| Dermal | LD50 | 12,800 mg/kg (rabbit) |
| Inhalative | LC50/4 h | 30 mg/l (rat) |

Modified Rosin

| | | |
|--------|------|-----------------------|
| Oral | LD50 | >4,000 mg/kg (Rat) |
| Dermal | LD50 | >2,500 mg/kg (rabbit) |

CAS: 78-92-2 sec-butanol

| | | |
|------|------|-------------------|
| Oral | LD50 | 6,480 mg/kg (rat) |
|------|------|-------------------|

Primary irritant effect:

on the skin: 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.

Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.

through ingestion: May cause gastrointestinal irritation.

Sensitization:

Sensitization possible through inhalation.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

(Contd. of page 6)

Sensitization possible through skin contact.

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful
Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

| | | |
|--------------|-------------|---|
| CAS: 67-63-0 | Isopropanol | 3 |
| CAS: 64-17-5 | ethanol | 1 |

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

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.

vPvB: Not applicable.

13 Disposal considerations

Waste treatment methods

Recommendation:

Disposal must be made according to official regulations.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

UN-Number

DOT, ADR, IMDG, IATA

UN1987

UN proper shipping name

DOT

ADR

IMDG, IATA

Alcohols, n.o.s. (Isopropanol, Butanols)
1987 Alcohols, n.o.s. (Isopropanol, Butanols)
ALCOHOLS, N.O.S. (ISOPROPANOL (ISOPROPYL
ALCOHOL), BUTANOLS)

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

(Contd. of page 7)

Transport hazard class(es)

DOT



Class Label 3 Flammable liquids
3

ADR, IMDG, IATA



Class Label 3 Flammable liquids
3

Packing group II
DOT, IMDG, IATA No
Marine pollutant: Not applicable.
Special precautions for user 33
Danger code (Kemler): F-E,S-D
EMS Number: B
Stowage Category B
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

DOT
Quantity limitations On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

ADR

Excepted quantities (EQ) Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

IMDG

Limited quantities (LQ) 1L
Excepted quantities (EQ) Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation": UN 1987 ALCOHOLS, N.O.S. (ISOPROPANOL, BUTANOLS), 3, II

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
All ingredients are listed on the following Government Inventories:

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

(Contd. of page 8)

China: Inventory of Existing Chemical Substances in China (IECSC)
 Korea: Korea Existing Chemicals List (ECL)
 Europe: European Inventory of Existing Commercial Chemical Substances (EINECS)
 Japan: Inventory of Existing and New Chemical Substances (ENCS)
 Philippines: Philippine Inventory of Chemicals and Chemical Substances (PICCS)
 USA: TSCA (Toxic Substances Control Act) TSCA Inventory of Chemical Substances

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):

CAS: 67-63-0 | Isopropanol

CAS: 78-92-2 | sec-butanol

California Proposition 65

Chemicals known to cause cancer:

4-methylpentan-2-one

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.

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.

GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



GHS02 GHS07

Signal word Danger

Hazard-determining components of labeling:

Isopropanol
 sec-butanol
 Modified Rosin

Hazard statements

H225 Highly flammable liquid and vapor.
 H319 Causes serious eye irritation.
 H317 May cause an allergic skin reaction.
 H336 May cause drowsiness or dizziness.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS 29CFR1910.1200

Printing Date 08/30/2017

Version number 9

Reviewed on 08/25/2017

Trade name: 185 Soldering Flux

(Contd. of page 9)

P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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 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 on how to use a Material Safety Data Sheet as a source for hazard information.

Department issuing Safety Data Sheet (SDS): Product Compliance / EHS Department

Contact: EHS_Kester@kester.com

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 Organisation
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
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
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Flam. Liq. 3: Flammable liquids – Category 3
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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