1: PRODUCT AND COMPANY IDENTIFICATION

Trade name: NF372-TB Soldering Flux and NF372-TB Flux Pen®

Article number: C3-00-NF372TB

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Kester Inc.
300 West Thorne Avenue
Itasca, IL 60143 USA
Tel (630) 616-4000

ITW Specialty Materials (Suzhou) Co., Ltd.
Heng Qiao Road
Wujian Economic Development Zone
Suzhou, Jiangsu 215200 China
Tel +86 512 82060808

Kester GmbH
Ganghofer Strasse 45
D-8216 Gemlinlind Germany
Tel +49 (0) 8142 4785

Information department: Product Compliance: EHS_Kester@kester.com

1.4 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: HAZARDS IDENTIFICATION

2.1 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.

GHS07
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

2.2 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
Highly flammable liquid and vapor.
Causes serious eye irritation.
May cause respiratory irritation. May cause drowsiness or dizziness.

(Contd. on page 2)
Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Wear protective gloves / eye protection.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard description:
WHMIS Symbols

Classification system:
NFPA ratings (scale 0 - 4)

3 Health = 1
2 Fire = 3
1 Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH 1 Health = 1
FIRE 3 Fire = 3
REACTIVITY 0 Reactivity = 0

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

3: COMPOSITION OF MIXTURE

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

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Description</th>
<th>% Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 67-63-0</td>
<td>Isopropanol</td>
<td>Flam. Liq. 2, H225, Eye Irrit. 2A, H319; STOT SE 3, H336</td>
</tr>
<tr>
<td>EINECS: 200-661-7</td>
<td>Aliphatic hydrocarbon solvent</td>
<td>Asp. Tox. 1, H304, Skin Irrit. 2, H315, Aquatic Chronic 4, H413</td>
</tr>
<tr>
<td></td>
<td>Rosin</td>
<td>Skin Sens. 1, H317</td>
</tr>
<tr>
<td></td>
<td>Organic Acid</td>
<td>Eye Irrit. 2A, H319</td>
</tr>
</tbody>
</table>

4: FIRST AID MEASURES

4.1 Description of first aid measures
General information: Follow general first aid procedures.
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.
4.2 Most important symptoms and effects, both acute and delayed Headache
4.3 Indication of any immediate medical attention and special treatment needed
If swallowed or in case of vomiting, danger of entering the lungs.

5: FIREFIGHTING MEASURES

5.1 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
5.2 Special hazards arising from the substance or mixture
Nitrogen oxides (NOx)
In case of fire, the following can be released:
5.3 Advice for firefighters
Protective equipment: Wear self-contained respiratory protective device.

6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
6.2 Environmental precautions: Do not allow to enter sewers/ surface or ground water.
6.3 Methods and material for containmnet and cleaning up:
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
6.4 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.

7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Keep receptacles tightly sealed.
Prevent formation of aerosols.
Information about protection against explosions and fires:
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
7.2 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: Not required.
Further information about storage conditions:
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
7.3 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.
8.1 Control parameters
Components with limit values that require monitoring at the workplace:
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

### 67-63-0 Isopropanol

<table>
<thead>
<tr>
<th></th>
<th>Long-term value: 980 mg/m³, 400 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>Short-term value: 1225 mg/m³, 500 ppm</td>
</tr>
<tr>
<td>REL</td>
<td>Long-term value: 980 mg/m³, 400 ppm</td>
</tr>
<tr>
<td>TLV</td>
<td>Short-term value: 984 mg/m³, 400 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 492 mg/m³, 200 ppm</td>
</tr>
</tbody>
</table>

**BEI**

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

8.2 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

![Face Shield with Safety Glasses]

Face Shield with Safety Glasses when refilling.

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9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

**General Information**

Appearance:
- Form: Liquid
- Color: Yellow
- Odor: Alcohol-like
Trade name: NF372-TB Soldering Flux and NF372-TB Flux Pen®

(Contd. of page 4)

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: 338 °C (640 °F)

Auto igniting: Product is not self-igniting.

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): 0.81 g/cm³ (6.759 lbs/gal)

Solubility in / Miscibility with
Water: Partly soluble.

Solvent content:
Organic solvents: 87.9 %

10: STABILITY AND REACTIVITY

10.1 Reactivity No further relevant information available.

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

10.3 Possibility of hazardous reactions No dangerous reactions known.

10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials: No further relevant information available.

10.6 Hazardous decomposition products: No dangerous decomposition products known.

11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity: Based on available data, the classification criteria are not met.

LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th>67-63-0 Isopropanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>LD50          5045 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal        LD50          12800 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative    LC50/4 h  30 mg/l (rat)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allphatic hydrocarbon solvent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>LD50          &gt; 5000 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal       LD50          &gt; 2000 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative   LC50/4 h  &gt; 5.2 mg/l (rat)</td>
</tr>
</tbody>
</table>

Primary irritant effect:
on the skin: Based on available data, the classification criteria are not met.
on the eye:
Causes serious eye irritation.

(Contd. on page 6)
12: ECOLOGICAL INFORMATION

12.1 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.
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Recommendation:
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

14.1 UN-Number
DOT, ADR, IMDG, IATA
UN1219
14.2 UN proper shipping name
DOT
Isopropanol mixture
ADR
1219 Isopropanol mixture
IMDG, IATA
ISOPROPANOL (ISOPROPYL ALCOHOL) mixture
14.3 Transport hazard class(es)
DOT
Class
3 Flammable liquids

(Contd. on page 7)
Trade name: NF372-TB Soldering Flux and NF372-TB Flux Pen®

Label 3 (Contd. of page 6)

ADR, IMDG, IATA

Class 3 Flammable liquids
Label 3
14.4 Packing group II
DOT, IMDG, IATA No
Marine pollutant: Not applicable.
14.6 Special precautions for user 33
Danger code (Kemler): F-E,S-D
EMS Number: B
Stowage Category Not applicable.
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
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 1219 ISOPROPANOL MIXTURE, 3, II

15: REGULATORY INFORMATION

15.1 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): |
| 67-63-0 Isopropanol |
| 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. | (Contd. on page 8)
SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

Trade name: NF372-TB Soldering Flux and NF372-TB Flux Pen®

(Contd. of page 7)

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.

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
Highly flammable liquid and vapor.
Causes serious eye irritation.
May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Wear protective gloves / eye protection.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/container in accordance with local/regional/national/international regulations.

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

16: OTHER INFORMATION
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing Safety Data Sheet (SDS): Product Compliance / EHS Department
Contact: EHS_Kester@kester.com
Date of preparation / last revision 04/11/2016 / 5

Abbreviations and acronyms:
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 Harmonised 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)
WHMIS: Workplace Hazardous Materials Information System (Canada)

(Contd. on page 9)
**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, Hazard Category 2
**Skin Irrit. 2:** Skin corrosion/irritation, Hazard Category 2
**Eye Irrit. 2A:** Serious eye damage/eye irritation, Hazard Category 2A
**Skin Sens. 1:** Sensitisation - Skin, Hazard Category 1
**STOT SE 3:** Specific target organ toxicity - Single exposure, Hazard Category 3
**Asp. Tox. 1:** Aspiration hazard, Hazard Category 1
**Aquatic Chronic 4:** Hazardous to the aquatic environment - Chronic Hazard, Category 4

*Data compared to the previous version altered.*