

**Material Safety Data Sheet**

acc. to ISO/DIS 11014

Printing date 05/22/2006

Reviewed on 05/22/2006

**1 Identification of substance****Product details****Trade name: TSF-6522***Application of the substance / the preparation: Soldering flux***Manufacturer/Supplier:**Kester  
515 E. Touhy Ave.  
Des Plaines, IL 60018Tel.(847) 297-1600  
Fax.(847) 390-9338**Information department:**

MSDS Coordinator

Tel. (847) 699-5755

**Emergency information:**

CHEMTREC 24-Hour Emergency Telephone Number:

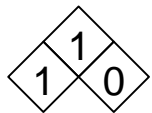
(800)424-9300

CHEMTREC 24-Hour Emergency Telephone Number (Outside of the U.S. and Canada):

(703)527-3887

**2 Composition/Data on components****Chemical characterization***Description: Mixture of the substances listed below with nonhazardous additions.***Dangerous components:**

65997-06-0	Modified Rosin	50-100%
112-73-2	bis(2-butoxyethyl) ether	10-25%
126-86-3	2,4,7,9-tetramethyldec-5-yne-4,7-diol	2.5-10%
27136-73-8	1H-Imidazole-1-ethanol, 2-(heptadecenyl)-4,5-dihydro-	2.5-10%
872-50-4	N-methyl-2-pyrrolidone	≤ 2.5%

**3 Hazards identification****WHMIS Hazard Symbols****Information pertaining to particular dangers for man and environment:***The product has to be labelled due to the calculation procedure of international guidelines.**May cause sensitisation by inhalation and skin contact.**Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.***NFPA ratings (scale 0 - 4)**

Health = 1

Fire = 1

Reactivity = 0

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**HMIS-ratings (scale 0 - 4)**

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

**4 First aid measures****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.**5 Fire fighting measures****Suitable extinguishing agents:**CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide (CO)

Carbon dioxide (CO<sub>2</sub>)

Aliphatic aldehydes

**Protective equipment:** Wear self-contained respiratory protective device.**6 Accidental release measures****Person-related safety precautions:** Ensure adequate ventilation**Measures for environmental protection:** Do not allow product to reach sewage system or any water course.**Measures for cleaning/collecting:** Scoop up paste and deposit in appropriate containers.**7 Handling and storage****Handling:****Information for safe handling:** Ensure good ventilation/exhaustion at the workplace.**Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.**Storage:****Requirements to be met by storerooms and receptacles:** Store at or near 5°C in a dry location.**Information about storage in one common storage facility:** Not required.**Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

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## 8 Exposure controls and personal protection

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

**Components with limit values that require monitoring at the workplace:**

### 65997-06-0 Modified Rosin

TLV	Short-term value: 3 mg/m <sup>3</sup> , NE ppm Long-term value: NE mg/m <sup>3</sup> , NE ppm
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### 872-50-4 N-methyl-2-pyrrolidone

WEEL	10 ppm
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#### **Additional information:**

PEL = Permissible Exposure Limit (OSHA)

REL = Recommended Exposure Limit (NIOSH)

TLV = Threshold Limit Value (ACGIH)

OSHA = Occupational Safety and Health Administration

ACGIH = American Conference of Governmental Industrial Hygienists

NIOSH = National Institute for Occupational Safety and Health

#### **Personal protective equipment:**

##### **General protective and hygienic measures:**

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:**

When ventilation is not sufficient to remove fumes from the breathing zone, a safety approved respirator or self-contained breathing apparatus should be worn.

##### **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:**



Tightly sealed goggles

Safety glasses

## 9 Physical and chemical properties

### General Information

**Form:** Pasty

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**Color:** Amber colored  
**Odor:** Mild

## Change in condition

**Melting point/Melting range:** Undetermined.

**Boiling point/Boiling range:** Undetermined.

**Flash point:** > 118°C (> 244°F)

**Ignition temperature:** > 260°C (> 500°F)

**Danger of explosion:** Product does not present an explosion hazard.

**Density at 20°C (68°F):** > 1 g/cm<sup>3</sup>

**Solubility in / Miscibility with Water:** Not miscible or difficult to mix.

## 10 Stability and reactivity

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Materials to be avoided:** Strong acids, strong oxidizers.

**Dangerous reactions** No dangerous reactions known.

### Dangerous products of decomposition:

When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes and acids.

Carbon monoxide and carbon dioxide

## 11 Toxicological information

### Acute toxicity:

#### LD/LC50 values that are relevant for classification:

#### 65997-06-0 Modified Rosin

Oral	LD50	> 4.000 mg/kg (Rat)
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#### 126-86-3 2,4,7,9-tetramethyldec-5-yne-4,7-diol

Oral	LD50	4600 mg/kg (rat)
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#### 872-50-4 N-methyl-2-pyrrolidone

Oral	LD50	3914 mg/kg (rat)
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Dermal	LD50	8000 mg/kg (rabbit)
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#### 112-73-2 bis(2-butoxyethyl) ether

Oral	LD50	3900 mg/kg (rat)
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### Primary irritant effect:

on the skin: Possible local irritation by contact with flux or fumes.

on the eye: Smoke during soldering can cause eye irritation.

through inhalation:

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

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*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:**Harmful**Irritant***12 Ecological information****Ecotoxicological effects:****Remark:** *Harmful to fish***General notes:***Do not allow product to reach ground water, water course or sewage system.**Harmful to aquatic organisms***13 Disposal considerations****Product:****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****DOT regulations:***Hazard class: -**Not regulated.***Land transport ADR/RID (cross-border):****ADR/RID class:** -*Not regulated.***Maritime transport IMDG:****IMDG Class:** -*Not regulated.***Marine pollutant:** *No***Air transport ICAO-TI and IATA-DGR:****ICAO/IATA Class:** -*Not regulated.*

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**15 Regulations**

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):

112-73-2 bis(2-butoxyethyl) ether

872-50-4 N-methyl-2-pyrrolidone

**TSCA (Toxic Substances Control Act):**

All ingredients are listed.

**California Proposition 65**

Chemicals known to cause cancer:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity:

WARNING: This product contains a chemical known to the State of California to cause birth defects and/or other reproductive harm.

**Carcinogenicity categories**

EPA (Environmental Protection Agency)

None of the ingredients is listed.

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH)

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: The following information relates to product regulation specific to 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 MSDS contains all of the information required by the CPR.

**EUROPEAN UNION**

The following information relates to product regulation specific to the directives of the European Union.

**Risk phrases:**

May cause sensitisation by inhalation and skin contact.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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**Safety phrases:***Keep out of the reach of children.**Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).**Avoid contact with skin and eyes.**Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.**Wear suitable gloves.**In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).**In case of accident by inhalation: remove casualty to fresh air and keep at rest.***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 MSDS:** *Product Safety*

USA