

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Revision date: 13/07/2023

Tacky Flux  
Product code: 950509

Page 1 of 17

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Tacky Flux

**Further trade names**

This MSDS covers the following products:

- 120-TEM

**1.2. Relevant identified uses of the substance or mixture and uses advised against****Use of the substance/mixture**

Flux gel for soft soldering

Soft Soldering for PCB's

**Uses advised against**

Any non-intended use.

**1.3. Details of the supplier of the safety data sheet****Manufacturer**

Company name:	Cobar Europe BV	
Street:	Aluminiumstraat 2	
Place:	NL-4823 AL Breda	
Telephone:	+31 76 5445566	Telefax: +31 76 5445577
E-mail:	info@cobar.com	
E-mail (Contact person):	SDS@balverzinn.com	
Internet:	www.Cobar.com	
Responsible Department:	BALVER ZINN (Germany) Product Safety Department +49 2375 915-199 Only available during office hours.	

**Supplier**

Company name:	BALVER ZINN Josef Jost GmbH & Co. KG	
Street:	Blintroper Weg 11	
Place:	D-58802 Balve	
Telephone:	+49 2375 915 - 0	Telefax: +49 2375 915 - 1700
Internet:	www.BalverZinn.com	

**1.4. Emergency telephone number:**+49 700 24 112 122 (Contract-ID: BZW)  
from USA / Canada please call 011 49 700 24 112 112**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**Skin Corr. 1B; H314  
Eye Dam. 1; H318  
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

**2.2. Label elements****Regulation (EC) No 1272/2008****Hazard components for labelling**N-(n-octyl)-2-pyrrolidone  
succinic acid**Signal word:** Danger

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 2 of 17

**Pictograms:**



**Hazard statements**

- H314 Causes severe skin burns and eye damage.
- H411 Toxic to aquatic life with long lasting effects.

**Precautionary statements**

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P264 Wash hands and face 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 or 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.
- P310 Immediately call a POISON CENTER/doctor.

**2.3. Other hazards**

For information or further instructions, see also section 11 or 12.

**SECTION 3: Composition/information on ingredients**

**3.2. Mixtures**

**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
2687-94-7	N-(n-octyl)-2-pyrrolidone			25 - < 30 %
	403-700-8	613-098-00-0	01-0000015335-74	
	Skin Corr. 1B, Aquatic Chronic 2; H314 H411 EUH071			
100-51-6	benzyl alcohol			10 - < 20 %
	202-859-9	603-057-00-5	01-2119492630-38	
	Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2; H332 H302 H319			
124-04-9	adipic acid			3 - < 6 %
	204-673-3	607-144-00-9	01-2119457561-38	
	Eye Irrit. 2; H319			
110-15-6	succinic acid			2 - < 3 %
	203-740-4		01-2119896114-34	
	Eye Dam. 1; H318			
70750-47-9	Quaternary ammonium compounds, C12-18-alkylbis(hydroxyethyl)methyl, chlorides			0,1 - < 0,4 %
	274-846-6		01-2119974110-47	
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 2; H302 H314 H318 H400 H411			

Full text of H and EUH statements: see section 16.

**Specific Conc. Limits, M-factors and ATE**

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
2687-94-7	403-700-8	N-(n-octyl)-2-pyrrolidone	25 - < 30 %
		dermal: LD50 = >4000 mg/kg; oral: LD50 = > 2200 mg/kg	

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 3 of 17

**Specific Conc. Limits, M-factors and ATE**

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
100-51-6	202-859-9	benzyl alcohol	10 - < 20 %
		inhalation: LC50 = 4,178 mg/l (vapours); inhalation: LC50 = >4,178 mg/l (dusts or mists); dermal: LD50 = >2000 mg/kg; oral: LD50 = 1620 mg/kg	
124-04-9	204-673-3	adipic acid	3 - < 6 %
		inhalation: LC50 = > 7,7 mg/l (dusts or mists); dermal: LD50 = 5010 mg/kg; oral: LD50 = ca. 5700 mg/kg	
110-15-6	203-740-4	succinic acid	2 - < 3 %
		inhalation: LC50 = 1284 mg/l (vapours); oral: LD50 = 6740 mg/kg	
70750-47-9	274-846-6	Quaternary ammonium compounds, C12-18-alkylbis(hydroxyethyl)methyl, chlorides	0,1 - < 0,4 %
		oral: LD50 = (1710) mg/kg Aquatic Acute 1; H400: M=10	

**Further Information**

Product does not contain listed SVHC substances > 0,1 % according to Regulation (EC) No. 1907/2006 Article 59 (REACH)

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**General information**

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Change contaminated clothing.

**After inhalation**

Provide fresh air. Medical treatment necessary. In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of irregular breathing or respiratory arrest provide artificial respiration. In case of breathing difficulties administer oxygen. In case of respiratory tract irritation, consult a physician.

**After contact with skin**

After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention. Remove contaminated, saturated clothing immediately. Wash immediately with: Water and soap. Get medical advice/attention.

**After contact with eyes**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist.

**After ingestion**

Rinse mouth immediately and drink 1 glass of water. Adverse human health effects and symptoms: Gastric perforation. Call a physician immediately. Do not allow a neutralisation agent to be drunk. Rinse mouth thoroughly with water. Let water be drunk in little sips (dilution effect). Do NOT induce vomiting. Never give anything by mouth to an unconscious person or a person with cramps. Call a physician in any case!

**4.2. Most important symptoms and effects, both acute and delayed**

refer to chapter 2 and 11.

**4.3. Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

**Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.

Suitable extinguishing media: Dry extinguishing powder. alcohol resistant foam. Atomized water.

**Unsuitable extinguishing media**

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Revision date: 13/07/2023

Tacky Flux  
Product code: 950509

Page 4 of 17

High power water jet.

**5.2. Special hazards arising from the substance or mixture**In case of fire may be liberated: Gas/vapours, irritant. Carbon monoxide Carbon dioxide (CO<sub>2</sub>).**5.3. Advice for firefighters**

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.  
In case of fire: Wear self-contained breathing apparatus.  
Do not inhale fumes.

**Additional information**

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.  
Co-ordinate fire-fighting measures to the fire surroundings.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures****General advice**

Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Remove persons to safety. Ventilate affected area. Avoid contact with skin, eyes and clothes. Do not breathe vapour/aerosol. Wear personal protection equipment (refer to section 8).

**For non-emergency personnel**

Wear personal protection equipment (refer to section 8).

**For emergency responders**

No special measures are necessary.

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains. Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

**6.3. Methods and material for containment and cleaning up****For containment**

Take up mechanically.  
Treat the recovered material as prescribed in the section on waste disposal.

**For cleaning up**

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal. Clean contaminated objects and areas thoroughly observing environmental regulations.

**Other information**

Take up mechanically.  
Treat the recovered material as prescribed in the section on waste disposal.  
Clean contaminated objects and areas thoroughly observing environmental regulations.

**6.4. Reference to other sections**

Safe handling: see section 7  
Personal protection equipment: see section 8  
Disposal: see section 13 Safe handling: see section 7  
Personal protection equipment: see section 8  
Disposal: see section 13

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 5 of 17

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Advice on safe handling**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Avoid dust formation. Do not breathe dust. Provide adequate ventilation.  
Do not breathe vapour/aerosol. Avoid contact with skin, eyes and clothes.  
Wear suitable protective clothing. (See section 8.)

**Advice on protection against fire and explosion**

Usual measures for fire prevention.

**Advice on general occupational hygiene**

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. The usual precautions for handling chemicals should be considered.  
Keep away from food, drink and animal feedingstuffs.  
Always close containers tightly after the removal of product. Do not eat, drink, smoke or sneeze at the workplace.  
Wash hands before breaks and after work. Take off contaminated clothing.

**Further information on handling**

General protection and hygiene measures: See section 8.

**7.2. Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaustion at critical locations. Keep container tightly closed in a cool, well-ventilated place.  
Keep/Store only in original container.

**Hints on joint storage**

Do not store together with: Explosives. Oxidizing solids. Oxidizing liquids. Organic peroxides. Self-reactive substances and mixtures. Radioactive substances.. Infectious substances.

**Further information on storage conditions**

Keep the packing dry and well sealed to prevent contamination and absorption of humidity.  
Protect against: UV-radiation/sunlight. heat. Humidity frost.  
storage temperature: refer to specifications.

**7.3. Specific end use(s)**

See section 1.

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Occupational exposure limits**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fib/cm <sup>3</sup>	Category	Origin
124-04-9	Adipic acid	-	5		TWA (8 h)	
-	Rosin core solder pyrolysis products (as airborne total resin acid)	-	0.05		TWA (8 h)	
		-	0.15		STEL (15 min)	

**DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
65997-06-0	hydrogenated rosin			
Consumer DNEL, long-term		dermal	systemic	10 mg/kg bw/day
Worker DNEL, long-term		dermal	systemic	17 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	35 mg/m <sup>3</sup>
Worker DNEL, long-term		inhalation	systemic	117 mg/m <sup>3</sup>
Consumer DNEL, long-term		oral	systemic	10 mg/kg bw/day

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 6 of 17

**DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
2687-94-7	N-(n-octyl)-2-pyrrolidone			
Worker DNEL, long-term		inhalation	systemic	17,45 mg/m <sup>3</sup>
Worker DNEL, long-term		dermal	systemic	2,5 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	5,75 mg/m <sup>3</sup>
Consumer DNEL, long-term		dermal	systemic	1,25 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	1,25 mg/kg bw/day
100-51-6	benzyl alcohol			
Worker DNEL, long-term		inhalation	systemic	22 mg/m <sup>3</sup>
Consumer DNEL, acute		inhalation	systemic	27 mg/m <sup>3</sup>
Worker DNEL, acute		inhalation	systemic	110 mg/m <sup>3</sup>
Worker DNEL, long-term		dermal	systemic	8 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	40 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	5,4 mg/m <sup>3</sup>
Consumer DNEL, acute		dermal	systemic	20 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	20 mg/kg bw/day
Consumer DNEL, long-term		dermal	systemic	4 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	4 mg/kg bw/day
65997-13-9	ester of hydrogenated rosin			
Worker DNEL, long-term		dermal	systemic	6,3 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	44,6 mg/m <sup>3</sup>
Consumer DNEL, long-term		dermal	systemic	3,8 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	13,2 mg/m <sup>3</sup>
Consumer DNEL, long-term		oral	systemic	3,8 mg/kg bw/day
124-04-9	adipic acid			
Worker DNEL, long-term		inhalation	systemic	264 mg/m <sup>3</sup>
Worker DNEL, acute		inhalation	systemic	264 mg/m <sup>3</sup>
Worker DNEL, long-term		inhalation	local	5 mg/m <sup>3</sup>
Worker DNEL, acute		inhalation	local	5 mg/m <sup>3</sup>
Worker DNEL, long-term		dermal	systemic	38 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	38 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	65 mg/m <sup>3</sup>
Consumer DNEL, acute		inhalation	systemic	65 mg/m <sup>3</sup>
Consumer DNEL, long-term		dermal	systemic	19 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	19 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	19 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	19 mg/kg bw/day
110-15-6	succinic acid			
Worker DNEL, acute		inhalation	local	10 mg/m <sup>3</sup>
Worker DNEL, long-term		dermal	systemic	71 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	67 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	10 mg/m <sup>3</sup>
Worker DNEL, long-term		inhalation	systemic	10 mg/m <sup>3</sup>
Worker DNEL, acute		inhalation	systemic	10 mg/m <sup>3</sup>
Worker DNEL, long-term		inhalation	local	10 mg/m <sup>3</sup>
Consumer DNEL, acute		inhalation	systemic	10 mg/m <sup>3</sup>
Consumer DNEL, long-term		inhalation	local	10 mg/m <sup>3</sup>
Consumer DNEL, acute		inhalation	local	10 mg/m <sup>3</sup>
Consumer DNEL, long-term		dermal	systemic	43 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	67 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	43 mg/kg bw/day



**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 7 of 17

**DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
DNEL type				
Consumer DNEL, acute		oral	systemic	67 mg/kg bw/day
70750-47-9	Quaternary ammonium compounds, C12-18-alkylbis(hydroxyethyl)methyl, chlorides			
Worker DNEL, long-term		inhalation	systemic	0,18 mg/m <sup>3</sup>
Worker DNEL, long-term		dermal	systemic	0,26 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,5 mg/m <sup>3</sup>
Consumer DNEL, long-term		dermal	systemic	0,16 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,16 mg/kg bw/day

**PNEC values**

CAS No	Substance	Value
Environmental compartment		
65997-06-0	hydrogenated rosin	
Freshwater		0,0016 mg/l
Marine water		0,00016 mg/l
Freshwater sediment		0,007 mg/kg
Marine sediment		0,0007 mg/kg
Micro-organisms in sewage treatment plants (STP)		1000 mg/l
Soil		0,00045 mg/kg
2687-94-7	N-(n-octyl)-2-pyrrolidone	
Freshwater		0,091 mg/l
Freshwater (intermittent releases)		0,076
Marine water		0,009 mg/l
Freshwater sediment		3,14 mg/kg
Marine sediment		0,314 mg/kg
Micro-organisms in sewage treatment plants (STP)		2,5 mg/l
Soil		0,164 mg/kg
100-51-6	benzyl alcohol	
Marine sediment		0,527 mg/kg
Freshwater sediment		5,27 mg/kg
Freshwater		1 mg/l
Marine water		0,1 mg/l
Micro-organisms in sewage treatment plants (STP)		39 mg/l
Soil		0,456 mg/kg
65997-13-9	ester of hydrogenated rosin	
Marine sediment		62,58 mg/kg
Freshwater sediment		625,79 mg/kg
Freshwater		0,027 mg/l
Freshwater (intermittent releases)		0,27 mg/l
Marine water		0,0027 mg/l
Micro-organisms in sewage treatment plants (STP)		2 mg/l
Soil		125 mg/kg
124-04-9	adipic acid	
Marine sediment		0,0484 mg/kg
Freshwater sediment		0,484 mg/kg
Freshwater		0126 mg/l
Marine water		0,0126 mg/l
Micro-organisms in sewage treatment plants (STP)		59,1 mg/l
Soil		0,0228 mg/kg
110-15-6	succinic acid	
Freshwater		0,1 mg/l

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 8 of 17

**PNEC values**

CAS No	Substance	Value
Environmental compartment		
Marine water		0,01 mg/l
Micro-organisms in sewage treatment plants (STP)		3 mg/l
Freshwater sediment		0,079 mg/kg
Marine sediment		0,0079 mg/kg
Soil		0,0177 mg/kg
Freshwater (intermittent releases)		1 mg/l
70750-47-9	Quaternary ammonium compounds, C12-18-alkylbis(hydroxyethyl)methyl, chlorides	
Freshwater		0,0121 mg/l
Marine water		0,00121 mg/l
Freshwater sediment		61,4 mg/kg
Marine sediment		6,14 mg/kg
Micro-organisms in sewage treatment plants (STP)		1,09 mg/l
Soil		30,6 mg/kg

**8.2. Exposure controls**



**Appropriate engineering controls**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Technical measures and the application of suitable work processes have priority over personal protection equipment. Provide adequate ventilation.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Suitable eye protection: goggles. Tightly sealed safety glasses. (EN 166)

**Hand protection**

Wear suitable gloves. The selected protective gloves have to satisfy the specifications of EU Directive EC/2016/425 and the standard EN 374 derived from it.

Preferred glove material (full contact): Butyl caoutchouc (butyl rubber) Thickness of glove material: 0,3 mm.

Acceptable glove material (splash contact): NBR (Nitrile rubber) Thickness of glove material: 0,4 mm.

For prolonged or repeated contact, a glove with protection index 4 or above is recommended (breakthrough time >120 minutes according to EN 374). For short contact only, a glove with protection index 1 or higher is recommended (breakthrough time >10 minutes according to EN 374). For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

In the case of wanting to use the gloves again, clean them before taking off and air them well. Before using check leak tightness / impermeability.

**Skin protection**

Use of protective clothing. Wear suitable protective clothing.

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500 (D).

**Respiratory protection**

In case of inadequate ventilation wear respiratory protection. With correct and proper use, and under normal conditions, breathing protection is not required.

Respiratory protection necessary at:

Insufficient ventilation

Exceeding exposure limit values

Suitable respiratory protective equipment: Combination filtering device (EN 14387) Type: A-P2/3

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus



**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 9 of 17

must be used.

**Environmental exposure controls**

Do not allow uncontrolled discharge of product into the environment.  
This material and its container must be disposed of in a safe way.

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

Physical state:	pasty
Colour:	yellowish
Odour:	characteristic
Odour threshold:	not determined

**Test method**

Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	206°C (benzyl alcohol) °C
Flammability:	not determined
Lower explosion limits:	1,22% (benzyl alcohol)
Upper explosion limits:	13% (benzyl alcohol)
Flash point:	94°C (benzyl alcohol) °C
Auto-ignition temperature:	435°C (benzyl alcohol) °C
Decomposition temperature:	not determined
pH-Value:	not determined
Viscosity / kinematic (at 20 °C):	not applicable
Water solubility:	not miscible
Solubility in other solvents	not determined
Partition coefficient n-octanol/water:	not determined
Vapour pressure (at 20 °C):	<1
Vapour pressure (at 50 °C):	0,67 hPa
Density (at 20 °C):	1,03 g/cm <sup>3</sup>
Relative vapour density:	not determined
Particle characteristics:	not determined

N/A

**9.2. Other information**

**Information with regard to physical hazard classes**

Explosive properties

The product is not: Explosive. none

Oxidizing properties

none.

**Other safety characteristics**

Solvent content:	10,99 %
Solid content:	62,64 %
Viscosity / dynamic (at 20 °C):	not determined
Flow time:	not determined

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No information available.

**10.2. Chemical stability**

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 10 of 17

The mixture is chemically stable under recommended conditions of storage, use and temperature.

**10.3. Possibility of hazardous reactions**

No hazardous reaction when handled and stored according to provisions.  
Refer to chapter 10.5.

**10.4. Conditions to avoid**

Protect against: UV-radiation/sunlight. heat.

**10.5. Incompatible materials**

Materials to avoid: Oxidizing agents, strong. Reducing agents, strong. Strong acid. strong alkalis.

**10.6. Hazardous decomposition products**

In case of fire may be liberated: Gas/vapours, irritant. Carbon monoxide Carbon dioxide (CO<sub>2</sub>).

**SECTION 11: Toxicological information**

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Toxicocinetics, metabolism and distribution**

No data available.

**Acute toxicity**

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

**ATEmix calculated**

ATE (oral) 14808 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) 100,6 mg/l; ATE (inhalation dust/mist) 13,71 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
2687-94-7	N-(n-octyl)-2-pyrrolidone				
	oral	LD50 > 2200 mg/kg	Rat	ECHA Dossier	
	dermal	LD50 >4000 mg/kg	Rat	ECHA Dossier	
100-51-6	benzyl alcohol				
	oral	LD50 1620 mg/kg	Rat	ECHA Dossier	
	dermal	LD50 >2000 mg/kg	Rabbit	RTECS	
	inhalation (4 h) vapour	LC50 4,178 mg/l	Rat		OECD 403
	inhalation (4 h) dust/mist	LC50 >4,178 mg/l	Rat	ECHA Dossier	OECD 403
124-04-9	adipic acid				
	oral	LD50 ca. 5700 mg/kg	Rat		
	dermal	LD50 5010 mg/kg	Rat	ECHA Dossier	
	inhalation (4 h) dust/mist	LC50 > 7,7 mg/l	Rat	ECHA Dossier	
110-15-6	succinic acid				
	oral	LD50 6740 mg/kg	Rat.	ECHA Dossier	
	inhalation (4 h) vapour	LC50 1284 mg/l	Rat	ECHA Dossier	
70750-47-9	Quaternary ammonium compounds, C12-18-alkylbis(hydroxyethyl)methyl, chlorides				
	oral	LD50 (1710) mg/kg	Rat	ECHA Dossier	

**Irritation and corrosivity**

Causes severe skin burns and eye damage.

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 11 of 17

Causes serious eye damage.

**Sensitising effects**

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

**Carcinogenic/mutagenic/toxic effects for reproduction**

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

**STOT-single exposure**

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

**STOT-repeated exposure**

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

**Aspiration hazard**

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

**Specific effects in experiment on an animal**

No data available.

**11.2. Information on other hazards**

**Endocrine disrupting properties**

No information available.

**Other information**

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

**SECTION 12: Ecological information**

**12.1. Toxicity**

Toxic to aquatic life with long lasting effects. The product has not been tested.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h][d]	Species	Source	Method
2687-94-7	N-(n-octyl)-2-pyrrolidone					
	Acute fish toxicity	LC50 17,8 mg/l	96 h	Oncorhynchus mykiss	ECHA Dossier	
	Acute algae toxicity	ErC50 19 mg/l	72 h	Desmodesmus subspicatus	ECHA Dossier	
	Acute crustacea toxicity	EC50 7,59 mg/l	48 h	Daphnia magna	ECHA Dossier	
	Fish toxicity	NOEC >= 11,1 mg/l	35 d	Danio rerio (zebra-fish)	ECHA Dossier	
	Crustacea toxicity	NOEC 2,5 mg/l	21 d	Daphnia magna	ECHA Dossier	
	Acute bacteria toxicity	(EC50 250 mg/l)	0,5 h	Activated sludge	ECHA Dossier	
100-51-6	benzyl alcohol					
	Acute fish toxicity	LC50 460 mg/l	96 h	Pimephales promelas (fathead minnow)	ECHA Dossier	
	Acute algae toxicity	ErC50 700 mg/l	72 h	Pseudokirchneriella subcapitata		OECD 201
	Acute crustacea toxicity	EC50 230 mg/l	48 h	Daphnia magna (Big water flea)	ECHA Dossier	OECD 202
	Crustacea toxicity	NOEC 51 mg/l	21 d	Daphnia magna	ECHA Dossier	OECD 211

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 12 of 17

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h][d]	Species	Source	Method
124-04-9	adipic acid					
	Acute fish toxicity	LC50 230 mg/l	96 h	Leuciscus idus		
	Acute algae toxicity	ErC50 59 mg/l	72 h	Pseudokirchneriella subcapitata	ECHA Dossier	
	Acute crustacea toxicity	EC50 46 mg/l	48 h	Daphnia magna (Big water flea)	ECHA Dossier	
	Fish toxicity	NOEC 6,3 mg/l	21 d	OECD 211	ECHA Dossier	
	Acute bacteria toxicity	7910 g O2/g	3 h	OECD 209	ECHA Dossier	
110-15-6	succinic acid					
	Acute fish toxicity	LC50 >100 mg/l	96 h	Danio rerio (OECD 203)	ECHA Dossier	
	Acute algae toxicity	ErC50 >100 mg/l	72 h	Pseudokirchnerella subcapitata (OECD 201)	ECHA Dossier	
	Acute crustacea toxicity	EC50 >100 mg/l	48 h	Daphnia magna	ECHA Dossier	
	Acute bacteria toxicity	(EC50 >300 mg/l)	3 h	Belebtschlamm (OECD 209)	ECHA Dossier	
70750-47-9	Quaternary ammonium compounds, C12-18-alkylbis(hydroxyethyl)methyl, chlorides					
	Acute fish toxicity	LC50 >1-10 mg/l	96 h	Danio rerio	MSDS external.	
	Acute algae toxicity	ErC50 >0,01-0,1 mg/l	72 h	Pseudokirchnerella subcapitata	MSDS external.	
	Acute crustacea toxicity	EC50 0,468 mg/l	48 h	Daphnia magna	ECHA Dossier	
	Crustacea toxicity	NOEC >0,01-0,1 mg/l	21 d	Daphnia magna	MSDS external.	
	Acute bacteria toxicity	(EC50 9 mg/l)	3 h	Activated sludge	ECHA Dossier	

**12.2. Persistence and degradability**

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
100-51-6	benzyl alcohol			
	OECD 301C	92 - 96%	14	
	Readily biodegradable (according to OECD criteria).			
	OECD 301A	95 - 97%	14	
	Readily biodegradable (according to OECD criteria).			
124-04-9	adipic acid			
	OECD 301D / EEC 92/69 annex V, C.4-E	83%	30	ECHA Dossier
	Easily biodegradable (concerning to the criteria of the OECD)			
110-15-6	succinic acid			
	OECD 301E / EEC 92/69 annex V, C.4-B	96%	28	ECHA Dossier
	Easily biodegradable (concerning to the criteria of the OECD)			
70750-47-9	Quaternary ammonium compounds, C12-18-alkylbis(hydroxyethyl)methyl, chlorides			
	@1203.B120931	64%	28	ECHA Dossier
	Readily biodegradable (according to OECD criteria).			

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

Revision date: 13/07/2023	Tacky Flux Product code: 950509	Page 13 of 17
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**12.3. Bioaccumulative potential**

No indication of bioaccumulation potential.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
100-51-6	benzyl alcohol	1,05
124-04-9	adipic acid	0,081
110-15-6	succinic acid	-0,59
70750-47-9	Quaternary ammonium compounds, C12-18-alkylbis(hydroxyethyl)methyl, chlorides	-0,12

**BCF**

CAS No	Chemical name	BCF	Species	Source
124-04-9	adipic acid	3,162	Quantitative structure-activity relationship (QSAR)	ECHA Dossier
110-15-6	succinic acid	~3		

**12.4. Mobility in soil**

No data available.

**12.5. Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.  
The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

**12.6. Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.  
The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

**12.7. Other adverse effects**

No information available.

**Further information**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Disposal recommendations**

Dispose of waste according to applicable legislation. Consult the local waste disposal expert about waste disposal. Non-contaminated packages may be recycled. According to (EWC) European Waste Catalogue, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Control report for waste code/ waste marking according to (EWC) European Waste Catalogue:

**List of Wastes Code - residues/unused products**

160305 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; organic wastes containing hazardous substances; hazardous waste

**List of Wastes Code - used product**

160305 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; organic wastes containing hazardous substances; hazardous waste

**List of Wastes Code - contaminated packaging**

150202 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; absorbents, filter materials, wiping cloths and protective clothing; absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances; hazardous waste

**Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 14 of 17

Recommended cleaning agent: Water, if necessary together with cleansing agents.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

**14.1. UN number or ID number:** UN 3263  
**14.2. UN proper shipping name:** CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.  
 N-(n-octyl)-2-pyrrolidone  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8



Classification code: C8  
 Special Provisions: 274  
 Limited quantity: 1 kg  
 Excepted quantity: E2  
 Transport category: 2  
 Hazard No: 80  
 Tunnel restriction code: E

**Inland waterways transport (ADN)**

**14.1. UN number or ID number:** UN 3263  
**14.2. UN proper shipping name:** CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.  
 N-(n-octyl)-2-pyrrolidone  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8



Classification code: C8  
 Special Provisions: 274  
 Limited quantity: 1 kg  
 Excepted quantity: E2

**Marine transport (IMDG)**

**14.1. UN number or ID number:** UN 3263  
**14.2. UN proper shipping name:** CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.  
 (N-(n-octyl)-2-pyrrolidone)  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8



Marine pollutant: YES  
 Special Provisions: 274  
 Limited quantity: 1 kg  
 Excepted quantity: E2  
 EmS: F-A, S-B



**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 15 of 17

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number or ID number:** UN 3263  
**14.2. UN proper shipping name:** CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.  
 N-(n-octyl)-2-pyrrolidone  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8



Special Provisions: A3 A803  
 Limited quantity Passenger: 5 kg  
 Passenger LQ: Y844  
 Excepted quantity: E2  
 IATA-packing instructions - Passenger: 859  
 IATA-max. quantity - Passenger: 15 kg  
 IATA-packing instructions - Cargo: 863  
 IATA-max. quantity - Cargo: 50 kg

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: Yes



Danger releasing substance: N-(n-octyl)-2-pyrrolidone  
 Reaction mass of 12-hydroxy-N-[2-[(1-oxodecyl)amino]alkyl]octadecanamide,  
 12-hydroxy-N-[2-[(1-oxooctyl)amino]alkyl]octadecanamide and  
 N,N'-1,2-alkandiylbis[12-hydroxyoctadecanamide]

**14.6. Special precautions for user**

Warning: strongly corrosive. N-(n-octyl)-2-pyrrolidone

**14.7. Maritime transport in bulk according to IMO instruments**

not relevant.

**SECTION 15: Regulatory information**

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

**EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 75

2010/75/EU (VOC): 12,648 % (130,269 g/l)

2004/42/EC (VOC): 57,318 % (590,37 g/l)

Information according to 2012/18/EU (SEVESO III): E2 Hazardous to the Aquatic Environment

**Additional information**

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].  
 REACH 1907/2006 Appendix XVII, No: not relevant

**National regulatory information**

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 2 - obviously hazardous to water

**Additional information**

Observe technical data sheet.

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Revision date: 13/07/2023

Tacky Flux  
Product code: 950509

Page 16 of 17

**15.2. Chemical safety assessment**

Chemical safety assessments for substances in this mixture were not carried out.

**SECTION 16: Other information****Changes**

Rev. 1.00/JTH; 13.07.2023: Initial release

**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)

CAS: Chemical Abstracts Service

DNEL: Derived No Effect Level

IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

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)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)

LOAEL: Lowest observed adverse effect level

LOAEC: Lowest observed adverse effect concentration

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NOAEL: No observed adverse effect level

NOAEC: No observed adverse effect concentration

NTP: National Toxicology Program

N/A: not applicable

OSHA: Occupational Safety and Health Administration

PNEC: predicted no effect concentration

PBT: Persistent bioaccumulative toxic

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

SARA: Superfund Amendments and Reauthorization Act

SVHC: substance of very high concern

TRGS Technische Regeln fuer Gefahrstoffe

TSCA: Toxic Substances Control Act

VOC: Volatile Organic Compounds

CLP: Classification, labelling and Packaging

REACH: Registration, Evaluation and Authorization of Chemicals

GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals

UN: United Nations

DNEL: Derived No Effect Level

DMEL: Derived Minimal Effect Level

PNEC: Predicted No Effect Concentration

ATE: Acute toxicity estimate

LL50: Lethal loading, 50%

EL50: Effect loading, 50%

EC50: Effective Concentration 50%

ErC50: Effective Concentration 50%, growth rate

NOEC: No Observed Effect Concentration

BCF: Bio-concentration factor

PBT: persistent, bioaccumulative, toxic

vPvB: very persistent, very bioaccumulative

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Regulations concerning the international carriage of dangerous goods by rail

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

Tacky Flux

Revision date: 13/07/2023

Product code: 950509

Page 17 of 17

EmS: Emergency Schedules

MFAG: Medical First Aid Guide

MARPOL: International Convention for the Prevention of Marine Pollution from Ships

IBC: Intermediate Bulk Container

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

Acute Tox: Acute toxicity

Skin Corr: Skin corrosion

Eye Dam: Eye damage

Eye Irrit: Eye irritation

Aquatic Acute: Acute aquatic hazard

Aquatic Chronic: Chronic aquatic hazard

**Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]**

Classification	Classification procedure
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Aquatic Chronic 2; H411	Calculation method

**Relevant H and EUH statements (number and full text)**

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
EUH071	Corrosive to the respiratory tract.

**Further Information**

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations. Classification according EC regulation 1272/2008 (CLP): - Classification procedure:

Health hazards: Calculation method.

Environmental hazards: Calculation method.

Physical hazards: On basis of test data and / or calculated. and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*