

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 10.03.2020

Version number 12

Revision: 10.03.2020

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: **Laminating and Repair Resin**

Article number: 30231, 30227, 30228, 30234

1.2 Relevant identified uses of the substance or mixture and uses advised against

Application of the substance / the mixture No further relevant information available.

Reaction resin
Knife filler/ Surfacer
Polyester resin

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier: AKEMI chemisch technische Spezialfabrik GmbH
Lechstrasse 28
D 90451 Nürnberg
Tel. +49(0)911-642960
Fax. +49(0)911-644456
e-mail info@akemi.de

Further information obtainable from:

Laboratory

1.4 Emergency telephone number:

Product Safety Department AKEMI chemisch technische Spezialfabrik GmbH
Tel. +49(0)911-64296-59
Reachable during the following office hours:
Monday – Thursday from 07:30 a.m. to 16:30 p.m.
Friday from 07:30 a.m. to 13:30 p.m.
+44 (171) 635 91 91
National Poison Inform. Centre
Medical Toxicology Unit
Avalonley Road
London SE14 5ER

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS08 health hazard

Repr. 2 H361d Suspected of damaging the unborn child.

STOT RE 2 H373 May cause damage to the hearing organs through prolonged or repeated exposure.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Response: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

Storage: Store in a well-ventilated place. Keep cool.

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2.2 Label elements

- Labelling according to Regulation (EC) No 1272/2008
- Hazard pictograms

The product is classified and labelled according to the CLP regulation.



GHS02 GHS07 GHS08

Signal word

Warning

Hazard-determining components of labelling:

styrene
maleic anhydride

Reaction mass of 2,2'-[(4-methylphenyl)imino]bisethanol and 2-[[2-(2-hydroxyethoxy)ethyl](4-methylphenyl)amino]-ethanol

Hazard statements

H226 Flammable liquid and vapour.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H317 May cause an allergic skin reaction.
 H361d Suspected of damaging the unborn child.
 H373 May cause damage to the hearing organs through prolonged or repeated exposure.

Precautionary statements

P101 If medical advice is needed, have product container or label at hand.
 P102 Keep out of reach of children.
 P103 Read label before use.
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P260 Do not breathe vapours.
 P280 Wear protective gloves / eye protection.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P314 Get medical advice/attention if you feel unwell.
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
 P403+P235 Store in a well-ventilated place. Keep cool.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

During processing and product hardening the network generator is released as fume. Consequently, take care for adequate air conditioning and for fume exhaustion on request.

Results of PBT and vPvB assessment

- PBT: Not applicable.
- vPvB: Not applicable.

SECTION 3: Composition/information on ingredients**3.2 Chemical characterisation: Mixtures**

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

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· <u>Dangerous components:</u>		
CAS: 25013-15-4 EINECS: 246-562-2 Reg.nr.: 01-2119622074-50-0000	vinyltoluene Flam. Liq. 3, H226 Asp. Tox. 1, H304 Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319	25-50%
CAS: 100-42-5 EINECS: 202-851-5 Index number: 601-026-00-0 Reg.nr.: 01-2119457861-32	styrene Flam. Liq. 3, H226 Repr. 2, H361d; STOT RE 1, H372; Asp. Tox. 1, H304 Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335 Aquatic Chronic 3, H412	<10%
EC number: 911-490-9 Reg.nr.: 01-2119979579-10	Reaction mass of 2,2'-[(4-methylphenyl)imino]bisethanol and 2-[[2-(2-hydroxyethoxy)ethyl](4-methylphenyl)amino]-ethanol Eye Dam. 1, H318 Acute Tox. 4, H302; Skin Irrit. 2, H315; Skin Sens. 1, H317 Aquatic Chronic 3, H412	<1%
CAS: 108-88-3 EINECS: 203-625-9 Index number: 601-021-00-3 Reg.nr.: 01-2119471310-51	toluene Flam. Liq. 2, H225 Repr. 2, H361d; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	<1%
CAS: 123-31-9 EINECS: 204-617-8 Index number: 604-005-00-4 Reg.nr.: 01-2119524016-51	1,4-dihydroxybenzene Acute Tox. 3, H311 Muta. 2, H341; Carc. 2, H351 Eye Dam. 1, H318 Aquatic Acute 1, H400 Acute Tox. 4, H302; Skin Sens. 1, H317	<1%
CAS: 108-31-6 EINECS: 203-571-6 Index number: 607-096-00-9 Reg.nr.: 01-2119472428-31	maleic anhydride Resp. Sens. 1, H334; STOT RE 1, H372 Skin Corr. 1B, H314; Eye Dam. 1, H318 Acute Tox. 4, H302; Skin Sens. 1A, H317	<1%

· Additional information: For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures**· 4.1 Description of first aid measures**

- General information: Take affected persons out into the fresh air.
Position and transport stably in side position.
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation: Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: If skin irritation continues, consult a doctor.
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: If symptoms persist consult doctor.

· 4.2 Most important symptoms and effects, both acute and delayed

Headache
Dizziness
Dizziness
Nausea

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· Information for doctor:

With reference to section 2 the formulation contains styrene in the indicated mass concentration range. Styrene fumes will preferably be incorporated by inhalation via respiratory tract, skin resorption is currently considered as an inferior way of incorporation. In case of inhalation styrene is absorbed in a 60-90% range. Distribution in organism occurs rapidly, the maximum blood concentration can be analyzed after one hour after incorporation. Styrene exposition affects skin, mucous membranes, and central nervous system (CNS).

Acute damages / risks to health:

In case of styrene poisoning mainly damages to and interactions with central nervous system (CNS) arise. In concentration ranges above 200 ml/m3 symptoms such as fatigue, nausea, imbalance and prolonged response times are observed.

Chronical health risks:

Effects at central and peripheral nervous system and respiratory tract are evident in literature.

Main health risks are:

- prolonged response times
- reduced cognitive performance, partial amnesia
- retardation of nervous impulse transition speed
- disturbances of pulmonary function

· Hazards

Danger of impaired breathing.

Skin contact with polyester and epoxy resin solutions as ingredient of the product should be avoided due to risks of skin irritations or allergic skin appearances. If occasional hand contact can not be avoided, protection gloves, proper protection ointments and protective agents generating a protective layer on the skin were applied.

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

If swallowed, gastric irrigation with added, activated carbon.

* **SECTION 5: Firefighting measures**

· **5.1 Extinguishing media**· Suitable extinguishing agents:

CO2, 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**

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Carbon monoxide (CO)

Nitrogen oxides (NOx)

Under certain fire conditions, traces of other toxic gases cannot be excluded.

· **5.3 Advice for firefighters**· Protective equipment:

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

Wear fully protective suit.

Mount respiratory protective device.

· Additional information

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Collect contaminated fire fighting water separately. It must not enter the sewage system.

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SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
 - Ensure adequate ventilation
 - Keep away from ignition sources.
 - Use respiratory protective device against the effects of fumes/dust/aerosol.
 - Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
 - Do not allow product to reach sewage system or any water course.
 - Inform respective authorities in case of seepage into water course or sewage system.
 - Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
 - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 - Dispose contaminated material as waste according to item 13.
 - Ensure adequate ventilation.
- **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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 - Keep receptacles tightly sealed.
 - Store in cool, dry place in tightly closed receptacles.
 - Keep away from heat and direct sunlight.
 - Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
 - Use only in well ventilated areas.
 - Ensure good ventilation/exhaustion at the workplace.
- **Information about fire - and explosion protection:**
 - 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 only in the original receptacle.
 - Prevent any seepage into the ground.
 - **Information about storage in one common storage facility:**
 - Store away from oxidising agents.
 - Store away from foodstuffs.
 - **Further information about storage conditions:**
 - Store receptacle in a well ventilated area.
 - Keep container tightly sealed.
- **7.3 Specific end use(s)**
 - No further relevant information available.

SECTION 8: Exposure controls/personal protection

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

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· 8.1 Control parameters

· Ingredients with limit values that require monitoring at the workplace:

100-42-5 styrene

WEL Short-term value: 1080 mg/m³, 250 ppm
Long-term value: 430 mg/m³, 100 ppm

108-88-3 toluene

WEL Short-term value: 384 mg/m³, 100 ppm
Long-term value: 191 mg/m³, 50 ppm
Sk

123-31-9 1,4-dihydroxybenzene

WEL Long-term value: 0.5 mg/m³

108-31-6 maleic anhydride

WEL Short-term value: 3 mg/m³
Long-term value: 1 mg/m³
Sen

· DNELs**25013-15-4 vinyltoluene**

Inhalative DNEL (Langzeit-wiederholt) 37 mg/m³ Air (ARB)

100-42-5 styrene

Oral	DNEL (Langzeit-wiederholt)	2.1 mg/kg bw/day (BEV)
Dermal	DNEL (Langzeit-wiederholt)	406 mg/kg bw/day (ARB)
		343 mg/kg bw/day (BEV)
Inhalative	DNEL (Kurzzeit-akut)	289-306 mg/m ³ Air (ARB)
		174.25-182.75 mg/m ³ Air (BEV)
	DNEL (Langzeit-wiederholt)	85 mg/m ³ Air (ARB)
		10.2 mg/m ³ Air (BEV)

Reaction mass of 2,2'-[(4-methylphenyl)imino]bisethanol and 2-[[2-(2-hydroxyethoxy)ethyl](4-methylphenyl)amino]-ethanol

Oral	DNEL (Langzeit-wiederholt)	0.83 mg/kg bw/day (BEV)
Dermal	DNEL (Langzeit-wiederholt)	1.4 mg/kg bw/day (ARB)
		0.83 mg/kg bw/day (BEV)
Inhalative	DNEL (Langzeit-wiederholt)	9.8 mg/m ³ Air (ARB)
		2.9 mg/m ³ Air (BEV)

108-88-3 toluene

Oral	DNEL (Langzeit-wiederholt)	8.13 mg/kg bw/day (BEV)
Dermal	DNEL (Langzeit-wiederholt)	384 mg/kg bw/day (ARB)
		226 mg/kg bw/day (BEV)
Inhalative	DNEL (Kurzzeit-akut)	384 mg/m ³ Air (ARB)
		226 mg/m ³ Air (BEV)
	DNEL (Langzeit-wiederholt)	192 mg/m ³ Air (ARB)
		56.5 mg/m ³ Air (BEV)

123-31-9 1,4-dihydroxybenzene

Dermal	DNEL (Langzeit-wiederholt)	128 mg/kg bw/day (ARB)
		64 mg/kg bw/day (BEV)
Inhalative	DNEL (Langzeit-wiederholt)	1-7 mg/m ³ Air (ARB)
		0.5-1.74 mg/m ³ Air (BEV)

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108-31-6 maleic anhydride

Dermal	DNEL (Kurzzeit-akut)	0.04 mg/kg bw/day (ARB)
	DNEL (Langzeit-wiederholt)	0.04 mg/kg bw/day (ARB)
Inhalative	DNEL (Kurzzeit-akut)	0.8 mg/m³ Air (ARB)
	DNEL (Langzeit-wiederholt)	0.4 mg/m³ Air (ARB)

· PNECs

25013-15-4 vinyltoluene

PNEC (wässrig)	1 mg/l (KA)
	0.002 mg/l (MW)
	0.0498 mg/l (SW)
PNEC (fest)	0.133 mg/kg Trockengew (BO)
	0.0684 mg/kg Trockengew (MWS)
	0.684 mg/kg Trockengew (SWS)

100-42-5 styrene

PNEC (wässrig)	5 mg/l (KA)
	0.014 mg/l (MW)
	0.028 mg/l (SW)
	0.04 mg/l (WAS)
PNEC (fest)	0.2 mg/kg Trockengew (BO)
	0.307 mg/kg Trockengew (MWS)
	0.614 mg/kg Trockengew (SWS)

Reaction mass of 2,2'-[(4-methylphenyl)imino]bisethanol and 2-[[2-(2-hydroxyethoxy)ethyl](4-methylphenyl)amino]-ethanol

PNEC (wässrig)	10 mg/l (KA)
	0.005 mg/l (MW)
	0.048 mg/l (SW)
PNEC (fest)	0.21 mg/kg Trockengew (BO)
	0.12 mg/kg Trockengew (MWS)
	1.2 mg/kg Trockengew (SWS)

108-88-3 toluene

PNEC (wässrig)	13.61 mg/l (KA)
	0.68 mg/l (MW)
	0.68 mg/l (SW)
	0.68 mg/l (WAS)
PNEC (fest)	2.89 mg/kg Trockengew (BO)
	16.39 mg/kg Trockengew (MWS)
	16.39 mg/kg Trockengew (SWS)

123-31-9 1,4-dihydroxybenzene

PNEC (wässrig)	0.71 mg/l (KA)
	0.0000114 mg/l (MW)
	0.000114 mg/l (SW)
	0.00134 mg/l (WAS)
PNEC (fest)	0.000129 mg/kg Trockengew (BO)
	0.000097 mg/kg Trockengew (MWS)
	0.00098 mg/kg Trockengew (SWS)

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108-31-6 maleic anhydride

PNEC (wässrig)	44.6 mg/l (KA)
	0.00446 mg/l (MW)
	0.0446 mg/l (SW)
	0.4281 mg/l (WAS)
PNEC (fest)	0.0415 mg/kg Trockengew (BO)
	0.0334 mg/kg Trockengew (MWS)
	0.334 mg/kg Trockengew (SWS)

· Additional information:

The lists valid during the making were used as basis.

· **8.2 Exposure controls**· Personal protective equipment:· General protective and hygienic measures:

Do not eat, drink, smoke or sniff while working.
 Use skin protection cream for skin protection.
 Clean skin thoroughly immediately after handling the product.
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing
 Wash hands before breaks and at the end of work.
 Do not inhale gases / fumes / aerosols.
 Avoid contact with the eyes and skin.

· Respiratory protection:

Suitable respiratory protective device recommended.
 Short term filter device:
 Filter AX

· Protection of hands:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
 Preventive skin protection by use of skin-protecting agents is recommended.
 After use of gloves apply skin-cleaning agents and skin cosmetics.

**Protective gloves**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The protection gloves to be used have to comply with the specifications of the directive 89/686/EC and the directive derived decree EN374, respectively, e.g. the above listed protection glove type. The mentioned permeation times' data were generated and verified with material samples of the recommended protection glove type in the scope of laboratory analyses of the company KCL GmbH in compliance with EN374.

This recommendation refers exclusively to the material safety data sheet referenced product delivered by Akemi and the indicated field of application. In case of product dilution or in case of mixture with different substances or chemicals, and in condition of EN374 deviation the producer of CE-approved protection gloves must be contacted for detailed information (e.g., KCL GmbH, Germany, 36124 Eichenzell, internet: <http://www.kcl.de>).

· Material of gloves

Butyl rubber, BR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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- Penetration time of glove material Value for the permeation: Level ≤ 2 , 30 min
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- For the permanent contact gloves made of the following materials are suitable: Butyl rubber, BR
Butoject (KCL, Art_No. 897, 898)
- As protection from splashes gloves made of the following materials are suitable: Butyl rubber, BR
- Not suitable are gloves made of the following materials: Chloroprene rubber, CR
Leather gloves
Strong material gloves
- Eye protection:  Tightly sealed goggles
- Body protection: Protective work clothing

SECTION 9: Physical and chemical properties**· 9.1 Information on basic physical and chemical properties****· General Information****· Appearance:**

- | | |
|------------------|-----------------|
| Form: | Fluid |
| Colour: | Yellow |
| Odour: | Characteristic |
| Odour threshold: | Not determined. |

· pH-value:	Not applicable
-------------	----------------

· Change in condition

- | | |
|--|---------------|
| Melting point/freezing point: | Undetermined. |
| Initial boiling point and boiling range: | 145 °C |

· Flash point:	32 °C
----------------	-------

· Ignition temperature:	480 °C
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· Decomposition temperature:	Not determined.
------------------------------	-----------------

· Auto-ignition temperature:	Product is not selfigniting.
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· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
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· Explosion limits:

- | | |
|--------|-----------|
| Lower: | 1.2 Vol % |
| Upper: | 8.9 Vol % |

· Vapour pressure at 20 °C:	6 hPa
-----------------------------	-------

- | | |
|---------------------|------------------------|
| · Density at 20 °C: | 1.13 g/cm ³ |
| · Relative density | Not determined. |
| · Vapour density | Not determined. |
| · Evaporation rate | Not determined. |

· Solubility in / Miscibility with water:	Not miscible or difficult to mix.
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· Partition coefficient: n-octanol/water:	Not determined.
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- | | |
|--------------------------------|--|
| · <u>Viscosity:</u> | |
| <u>Dynamic:</u> | Not determined. |
| <u>Kinematic at 20 °C:</u> | 210 s (DIN 53211/4) |
| · <u>Solvent content:</u> | |
| <u>Organic solvents:</u> | 47.7 % |
| <u>Solids content:</u> | 65.0 % |
| · 9.2 Other information | No further relevant information available. |

SECTION 10: Stability and reactivity

- | | |
|--|---|
| · 10.1 Reactivity | No further relevant information available. |
| · 10.2 Chemical stability | |
| · <u>Thermal decomposition / conditions to be avoided:</u> | No decomposition if used according to specifications. |
| · 10.3 Possibility of hazardous reactions | Exothermic polymerisation.
Reacts with peroxides and other radical forming substances. |
| · 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. |

SECTION 11: Toxicological information

- | | |
|--|---|
| · 11.1 Information on toxicological effects | |
| · <u>Acute toxicity</u> | Based on available data, the classification criteria are not met. |

- | | |
|--|--|
| · <u>LD/LC50 values relevant for classification:</u> | |
|--|--|

ATE (Acute Toxicity Estimates)

Inhalative	LC50/4 h	23.5 mg/l
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25013-15-4 vinyltoluene

Oral	LD50	3,680 mg/kg (rat)
	NOAEL	600 mg/kg (rat)
Dermal	LD50	4,490 mg/kg (rabbit)
	LC50/4h	>3,535 mg/m3 (rat)
Inhalative	LC50/4 h	11 mg/l (ATE)

100-42-5 styrene

Oral	LD50	>2,000 mg/kg (rat)
	LD50	>2,000 mg/kg (rat) (OECD-Prüfrichtlinie 402)
Dermal	LD50	9.5 mg/m3 (mouse)
	LC50/4 h	11.8 mg/l (rat)
Inhalative	LC50/4 h	4.34 mg/l (rat)

Reaction mass of 2,2'-[(4-methylphenyl)imino]bisethanol and 2-[[2-(2-hydroxyethoxy)ethyl](4-methylphenyl)amino]-ethanol

Oral	LD50	619 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)

108-88-3 toluene

Oral	LD50	5,580 mg/kg (rat)
Dermal	LD50	12,124 mg/kg (rabbit)

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Inhalative	LC50/4 h	5,320 mg/l (mus) 25.7-30 mg/l (rat)
123-31-9 1,4-dihydroxybenzene		
Oral	LD50	302 mg/kg (rat) (OECD 401)
	NOEL	50 mg/kg (mouse) 75 mg/kg (rabbit) 100 mg/kg (rat)
	NOAEL	15 mg/kg (rat)
	LD50	>900 mg/kg (rat)
Dermal	LD50	>900 mg/kg (rat)
108-31-6 maleic anhydride		
Oral	LD50	1,090-2,620 mg/kg (rabbit) 400-480 mg/kg (rat)
	LD50	2,620 mg/kg (rabbit)
Inhalative	LC50/1h	>4.35 mg/l (rat)
	LC50/48h	138 mg/l (lem)

- Primary irritant effect:

- Skin corrosion/irritation

- Serious eye damage/irritation

- Respiratory or skin sensitisation

- Experience with humans:

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

After incorporation and inhalation styrene predominantly will be metabolized in the organism to mandelic and phenylglyoxylic acid and metabolites will pass through urine excretion.

- Toxicokinetics, metabolism and distribution

After incorporation and inhalation styrene predominantly will be metabolized in the organism to mandelic and phenylglyoxylic acid and metabolites will pass through urine excretion.

- Acute effects (acute toxicity, irritation and corrosivity)

Styrene:

Artificial special nutrition in rat population, acute LD50 value, oral: 5000 mg/kg.

Inhalation, rat population, acute LC50 value (4h): 24 mg/l.

- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Styrene

Tests for chromosome divergence:

Mouse micro-nucleus test: mutagen

Styrene:

Tests for DNA effects:

- exchange of chromatides: mutagen

- DNA chain fragmentation: mutagen

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

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

Suspected of damaging the unborn child.

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

May cause damage to the hearing organs through prolonged or repeated exposure.

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

- Germ cell mutagenicity

- Carcinogenicity

- Reproductive toxicity

- STOT-single exposure

- STOT-repeated exposure

- Aspiration hazard

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SECTION 12: Ecological information**12.1 Toxicity****Aquatic toxicity:****25013-15-4 vinyltoluene**

EC50	2.6 mg/l (Bluegill.)
EC50/48h	1.3 mg/l (daphnia magna)
NOELR/72h	1.6 mg/l (green alge)
NOEC/21d	0.498 mg/l (daphnia magna)
	0.563 mg/l (piscis)
EC50/72h	5.2 mg/l (Fathead minnow)
	2.6 mg/l (senastrum capricornutum)
LC50/96h	5.2-23.4 mg/l (piscis)

100-42-5 styrene

EC50/96h	6.3 mg/l (Pseudokirchneriella subcapitata)
EC50	500 mg/l (BES) (ISO Vorschrift 8192-1986 E)
	5.5 mg/l (Photobac. phosphoreum)
IC50/72h	4.9 mg/l (green alge)
	1.4 mg/l (senastrum capricornutum)
IC5/8d	>200 mg/l (Scenedesmus quadricauda)
EC10/16h	72 mg/l (pseudomonas putida)
EC50/16h	>72 mg/l (pseudomonas putida)
EC50/8d	>200 mg/l (Scenedesmus quadricauda)
EC50/72u	>1-<10 mg/l (green alge)
EC20/0.5h	140 mg/l (BES) (OECD 209)
NOEC/21d	1.01 mg/l (daphnia magna)
EC10	0.28 mg/l (Pseudokirchneriella subcapitata) (EPA OTS 797.1050)
EC50/48h	0.56 mg/l (green alge)
	3.3-7.4 mg/l (daphnia magna)
EC50/72h	0.46-4.3 mg/l (Pseudokirchneriella subcapitata)
LC50/96h	>1-<10 mg/l (piscis)
	19.03-33.53 mg/l (lem)
	3.24-4.99 mg/l (pimephales promelas)
	6.75-14.5 mg/l (Pimephales promelas)
	58.75-95.32 mg/l (poecilia reticulata)
LC50/72h	4.9 mg/l (green alge)

Reaction mass of 2,2'-[(4-methylphenyl)imino]bisethanol and 2-[[2-(2-hydroxyethoxy)ethyl](4-methylphenyl)amino]-ethanol

EC50/48h	48 mg/l (daphnia magna)
EC50/72h	>100 mg/l (Pseudokirchneriella subcapitata)
LC50/96h	>100 mg/l (Cyprinus carpio)

108-88-3 toluene

EC50/24h	84 mg/l (BES)
EC50/96h	>433 mg/l (Pseudokirchneriella subcapitata)
IC50/72h	12 mg/l (Pseudokirchneriella subcapitata) (lit.)
	12 mg/l (Senastrum capricornutum) (lit.)

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EC50/48h	5.46-11.5 mg/l (daphnia magna) (lit.)
NOEC	0.74 mg/kg (daphnia magna)
EC50/48h	3.78 mg/l (daphnia magna)
EC50/72h	10 mg/l (green alge)
	12.5 mg/l (Pseudokirchneriella subcapitata)
LC50/96h	5.5 mg/l (piscis)
	11-15 mg/l (lem)
	5.8-17 mg/l (Oncorhynchus mykiss) (lit.)
	54 mg/l (Oryzias latipes)
	12.6-19.05 mg/l (pimephales promelas)
	7-28.2 mg/l (poecilia reticulata)

123-31-9 1,4-dihydroxybenzene

EC50/24h	0.12 mg/l (daphnia magna)
EC50	13.5 mg/l (Desmodesmus subspicatus)
EC50/48h	0.134 mg/l (daphnia magna) (OECD 202)
ErC50/72h	0.335 mg/l (Pseudokirchneriella subcapitata) (IUCLID)
NOELR/72h	0.019 mg/l (Pseudokirchneriella subcapitata)
NOEC/21d	0.0057 mg/l (daphnia magna) (OECD 211)
EC50/48h	0.29 mg/l (daphnia magna)
EC50/72h	0.335 mg/l (Scenedesmus subspicatus) (OECD 201)
LC50/96h	0.17 mg/l (Brachydanio rerio)
	0.638 mg/l (Oncorhynchus mykiss) (OECD 203)
	0.044-0.18 mg/l (pimephales promelas) (IUCLID)

108-31-6 maleic anhydride

EC50/24h	316-330 mg/l (daphnia magna)
EC50	77 mg/l (daphnia magna)
EC10/18h	44.6 mg/l (pseudomonas putida)
EC50/48h	42.81 mg/l (daphnia magna)
ErC50/72h	74.35 mg/l (Pseudokirchneriella subcapitata) (OECD 202)
NOELR/72h	150 mg/l (Pseudokirchneriella subcapitata)
NOEC/21d	10 mg/l (daphnia magna)
EC50/72h	29 mg/l (Desmodesmus subspicatus)
	74.32 mg/l (Pseudokirchneriella subcapitata)
	>150 mg/l (Selenastrum capricornutum)
LC50/96h	75 mg/l (Iepomis macrochirus)
	75 mg/l (Oncorhynchus mykiss)

• **12.2 Persistence and degradability**

No further relevant information available.

• **12.3 Bioaccumulative potential**

No further relevant information available.

• **12.4 Mobility in soil**

No further relevant information available.

• **Additional ecological information:**

• **General notes:**

Do not allow product to reach ground water, water course or sewage system.
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water

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

• **PBT:**

Not applicable.

• **vPvB:**

Not applicable.

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- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

• 13.1 Waste treatment methods

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

• European waste catalogue

20 00 00	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01 00	separately collected fractions (except 15 01)
20 01 27*	paint, inks, adhesives and resins containing hazardous substances

• Uncleaned packaging:

- Recommendation: Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

- Recommended cleansing agents: Alcohol
acetone

SECTION 14: Transport information

• 14.1 UN-Number

- ADR, IMDG, IATA UN3269

• 14.2 UN proper shipping name

- ADR 3269 POLYESTER RESIN KIT
- IMDG, IATA POLYESTER RESIN KIT

• 14.3 Transport hazard class(es)

- ADR



- Class 3 (F3) Flammable liquids.
- Label 3

- IMDG, IATA



- Class 3 Flammable liquids.
- Label 3

• 14.4 Packing group

- ADR, IMDG, IATA III

• 14.5 Environmental hazards:

- Marine pollutant: No

• 14.6 Special precautions for user

- Warning: Flammable liquids.
- Hazard identification number (Kemler code): -
- EMS Number: F-E,S-D
- Stowage Category: A

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• **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable.

• Transport/Additional information:

• ADR

• Limited quantities (LQ)

5L

• Excepted quantities (EQ)

Code: E0

Not permitted as Excepted Quantity

• Transport category

3

• Tunnel restriction code

E

• IMDG

• Limited quantities (LQ)

5L

• Excepted quantities (EQ)

Code: See SP340

• UN "Model Regulation":

UN 3269 POLYESTER RESIN KIT, 3, III

SECTION 15: Regulatory information

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

• Directive 2012/18/EU

• Named dangerous substances - ANNEX I

None of the ingredients is listed.

• Seveso category

P5c FLAMMABLE LIQUIDS

• Qualifying quantity (tonnes) for the application of lower-tier requirements

5,000 t

• Qualifying quantity (tonnes) for the application of upper-tier requirements

50,000 t

• REGULATION (EC) No 1907/2006 ANNEX XVII

Conditions of restriction: 3

• National regulations:

• Information about limitation of use: Employment restrictions concerning juveniles must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.

• Waterhazard class:

Water hazard class 2 (Self-assessment): hazardous for water.

• VOC EU

538.4 g/l

• **15.2 Chemical safety assessment:**

A Chemical Safety Assessment has not been carried out.

SECTION 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.

• Relevant phrases

H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.

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H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
 H341 Suspected of causing genetic defects.
 H351 Suspected of causing cancer.
 H361d Suspected of damaging the unborn child.
 H372 Causes damage to the hearing organs through prolonged or repeated exposure.
 H373 May cause damage to the hearing organs through prolonged or repeated exposure.
 H400 Very toxic to aquatic life.
 H412 Harmful to aquatic life with long lasting effects.
 refer to Technical Data Sheet (TDS)

• Recommended restriction of use

• Department issuing SDS:

• Contact:

• Abbreviations and acronyms:

Laboratory

Dieter Zimmermann

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

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)

DNEL: Derived No-Effect Level (REACH)

PNEL: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 3: Acute toxicity - dermal – Category 3

Acute Tox. 4: Acute toxicity - inhalation – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Skin Sens. 1A: Skin sensitisation – Category 1A

Muta. 2: Germ cell mutagenicity – Category 2

Carc. 2: Carcinogenicity – Category 2

Repr. 2: Reproductive toxicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

REACH directive 1907/2006/EC

• Sources

• * Data compared to the previous version altered.

Adaptation in accordance with REACH directive 1907/2006/EC