

1 Identification of substance

Product details

- Trade name: **Mixbond**
- Article number: 10760, 10761, 10762, 10763, 10764, 10765, 10766, 10767, 10768, 10769, 10770, 10771, 10772, 10773, 10774
- Application of the substance / the preparation: Polyester resin
Reaction resin
- Manufacturer/Supplier: AKEMI chemisch technische Spezialfabrik GmbH
Lechstrasse 28
D 90451 Nürnberg
Tel. +49(0)911-642960
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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.

2 Composition/Data on components

Chemical characterization

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

Dangerous components:

CAS: 100-42-5 EINECS: 202-851-5 601-026-00-0	styrene ☒ Xn, ☒ Xi; R 10-20-36/38 Warning: ☒ 2.6/3; ☒ 3.1.1/4, 3.2/2, 3.3/2A	25-50%
CAS: 8002-74-2 EINECS: 232-315-6	Paraffin waxes and Hydrocarbon waxes	<1%
CAS: 67-56-1 EINECS: 200-659-6 603-001-00-X	methanol ☒ T, ☒ F; R 11-23/24/25-39/23/24/25 Danger: ☒ 2.6/2; ☒ 3.1.O/2, 3.1.D/2, 3.1.1/2; ☒ 3.8/1	<1%
CAS: 38668-48-3 EINECS: 254-075-1	1,1'-(p-tolyimino)dipropan-2-ol ☒ T; R 25-52/53 Danger: ☒ 3.1.O/2 4.1.C/3	<1%

- Additional information: For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

Hazard description:



Xn Harmful

Information pertaining to particular dangers for man and environment:

Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.
Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided.

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Flammable.

Harmful by inhalation.

Irritating to eyes and skin.

Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

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· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 3
Reactivity = 0

· **HMS-ratings (scale 0 - 4)**

Health = 2
Fire = 3
Reactivity = 0

· **Response:**

IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a POISON CENTER or doctor/physician if you feel unwell.
Specific treatment (see label).
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use for extinction: CO₂, powder or water spray.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.
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.

· **Storage:**· **Disposal:**· **Additional information:****4 First aid measures**· **General information:**

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.
Take affected persons out into the fresh air.

· **After inhalation:**

Position and transport stably on side.
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:**

Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.

· **After eye contact:**

Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Do not induce vomiting; immediately call for medical help.
Drink copious amounts of water and provide fresh air. Immediately call a doctor.

· **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.

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|---|--|
| <ul style="list-style-type: none"> · <u>The following symptoms may occur:</u> · <u>Danger</u> · <u>Treatment</u> | <p>Main health risks are:</p> <ul style="list-style-type: none"> - prolonged response times - reduced cognitive performance, partial amnesia - retardation of nervous impulse transition speed - disturbances of pulmonary function <p>Breathing difficulty
Headache
Dizziness
Dizziness
Coughing
Nausea</p> <p>Danger of impaired breathing.
If swallowed, gastric irrigation with added, activated carbon.</p> |
|---|--|

5 Fire fighting measures

- | | |
|---|--|
| <ul style="list-style-type: none"> · <u>Suitable extinguishing agents:</u> · <u>For safety reasons unsuitable extinguishing agents:</u> · <u>Special hazards caused by the material, its products of combustion or resulting gases:</u> · <u>Protective equipment:</u> · <u>Additional information</u> | <p>CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.</p> <p>Water with full jet</p> <p>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 (NO_x)
Hydrogen cyanide (HCN)
Hydrogen chloride (HCl)
In certain fire conditions, traces of other toxic gases cannot be excluded.</p> <p>Wear self-contained respiratory protective device.
Do not inhale explosion gases or combustion gases.
Wear fully protective suit.</p> <p>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.</p> |
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6 Accidental release measures

- | | |
|--|---|
| <ul style="list-style-type: none"> · <u>Person-related safety precautions:</u> · <u>Measures for environmental protection:</u> · <u>Measures for cleaning/collecting:</u> · <u>Additional information:</u> | <p>Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
Use respiratory protective device against the effects of fumes/dust/aerosol.</p> <p>Inform respective authorities in case of seepage into water course or sewage system.
Do not allow product to reach sewage system or any water course.
Do not allow to enter sewers/ surface or ground water.</p> <p>Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
Dispose of the collected material according to regulations.</p> <p>See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.</p> |
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See Section 13 for disposal information.

7 Handling and storage**· Handling:****· Information for safe handling:**

Ensure good ventilation/exhaustion at the workplace.
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.

· Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Protect from heat.

· Storage:**· Requirements to be met by storerooms and receptacles:**

Store in a cool location.
Store only in the original receptacle.
Prevent any seepage into the ground.

· Information about storage in one common storage facility:

Store away from oxidizing agents.
Do not store together with acids.
Do not store together with alkalis (caustic solutions).
Store away from foodstuffs.

· Further information about storage conditions:

Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Store receptacle in a well ventilated area.

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:**100-42-5 styrene**

PEL	Short-term value: C 200; 600* ppm Long-term value: 100 ppm *5-min peak in any 3 hrs
REL	Short-term value: 425 mg/m ³ , 100 ppm Long-term value: 215 mg/m ³ , 50 ppm
TLV	Short-term value: 170 mg/m ³ , 40 ppm Long-term value: 85 mg/m ³ , 20 ppm BEI

8002-74-2 Paraffin waxes and Hydrocarbon waxes

REL	2 mg/m ³
TLV	2 mg/m ³

67-56-1 methanol

PEL	260 mg/m ³ , 200 ppm
REL	Short-term value: 325 mg/m ³ , 250 ppm Long-term value: 260 mg/m ³ , 200 ppm Skin
TLV	Short-term value: 328 mg/m ³ , 250 ppm Long-term value: 262 mg/m ³ , 200 ppm Skin; BEI

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- Additional information: The lists that were valid during the creation were used as basis.
- **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.
 Do not inhale gases / fumes / aerosols.
 Avoid contact with the eyes and skin.
 Do not eat, drink, smoke or sniff while working.
 Use skin protection cream for skin protection.
 Clean skin thoroughly immediately after handling the product.
- Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
 Short term filter device:
 Filter A/P2
- Protection of hands:

After use of gloves apply skin-cleaning agents and skin cosmetics.
 Preventive skin protection by use of skin-protecting agents is recommended.
 Akemi skin protection agent recommendation for preventive skin shelter without use of protective gloves:
 STOKODERM (<http://www.stoko.com>)
 ARRETIL (<http://www.stoko.com>)
 Akemi skin protection agent recommendation for preventive skin shelter in application and combination of protective gloves:
 STOKO EMULSION (<http://www.stoko.com>)
 Akemi skin protection recommendation for skin cleaning after product handling:
 FRAPANTOL (<http://www.stoko.com>)
 SLIG SPEZIAL (<http://www.stoko.com>)
 Akemi skin protection agent recommendation for skin aftercare:
 STOKO VITAN (<http://www.stoko.com>)

**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 Fluorocarbon rubber (Viton)
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.
- Penetration time of glove material The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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- Value for the permeation: Level \geq 6, 480 min
- For the permanent contact gloves made of the following materials are suitable: Fluorocarbon rubber (Viton)
Vitoject (KCL, Art No. 890)
 - As protection from splashes gloves made of the following materials are suitable: Fluorocarbon rubber (Viton)
Vitoject (KCL, Art No. 890)
Nitrile rubber, NBR
Camatril (KCL, 730, 731, 732, 733)
Butyl rubber, BR
Butoject (KCL, Art No. 897, 898)
 - Not suitable are gloves made of the following materials: Natural rubber, NR
Leather gloves
Strong gloves
 - Eye protection:  Tightly sealed goggles
 - Body protection: Protective work clothing

9 Physical and chemical properties**· General Information**

<u>Form:</u>	Fluid
<u>Color:</u>	According to product specification
<u>Odor:</u>	Characteristic

· Change in condition

<u>Melting point/Melting range:</u>	Undetermined.
<u>Boiling point/Boiling range:</u>	145°C (293°F)

· **Flash point:** 31°C (88°F)

· **Ignition temperature:** 480°C (896°F)

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

<u>Lower:</u>	1.2 Vol %
<u>Upper:</u>	8.9 Vol %

· **Vapor pressure at 20°C (68°F):** 6 hPa (5 mm Hg)

· **Density at 20°C (68°F):** 1.16 g/cm³ ([1,15 - 1,18 g/cm³])

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

· Viscosity:

Dynamic at 20°C (68°F): 38000 mPas

· Solvent content:

Organic solvents: 32.2 %

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10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
No decomposition if used and stored according to specifications.
- **Dangerous reactions** Exothermic polymerization.
Reacts with strong oxidizing agents.
Reacts with strong alkali.
Reacts with strong acids.
Reacts with peroxides and other radical forming substances.
- **Dangerous products of decomposition:** Hydrogen chloride (HCl)
Nitrogen oxides (NO_x)
Carbon monoxide and carbon dioxide
Possible in traces.

11 Toxicological information

· **Acute toxicity:**

· LD/LC50 values that are relevant for classification:

100-42-5 styrene

Oral	LD50	>2000 mg/kg (rat)
Inhalative	LC50/4 h	11.8 mg/l (rat)
	LC50/4h	9.5 mg/m ³ (mouse)

1843-05-6 Octabenzon

Oral	LD50	> 2000 mg/kg (rat)
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67-56-1 methanol

Oral	LD50	> 2000 mg/kg (rat)
Dermal	LD50	> 2000 mg/kg (rabbit)

38668-48-3 1,1'-(p-tolylimino)dipropan-2-ol

Oral	LD50	> 25 - <200 mg/kg (rat)
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· Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- Sensitization: No sensitizing effects known.

· **Additional toxicological information:**

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

12 Ecological information

· **Ecotoxicological effects:**

· Acquatic toxicity:

100-42-5 styrene

EC10/16h	72 mg/l (pseudomonas putida)
EC50	5.5 mg/l (Photobac. phosphoreum)
EC50/16h	> 72.0 mg mg/l (pseudomonas putida)
EC50/48h	0.56 mg/l (green alga)
	4.7 mg/l (daphnia magna)
EC50/72u	>1-<10 mg/l (green alga)

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EC50/8d	> 200 mg/l (Scenedesmus quadricauda)
IC5/8d	> 200 mg/l (Scenedesmus quadricauda)
IC50/72h	1.4 mg mg/l (senastrum capricornutum)
LC50/96h	>1-<10 mg/l (piscis)
	25.0 mg/l (lem)
	32 mg/l (pimephales promelas)

1843-05-6 Octabenzon

EC50	>100 mg/l (Scenedesmus subspicatus)
IC50	>100 mg/l (BES)
	52 mg/l (daphnia magna)
LC50	>100 mg/l (Brachydanio rerio)

67-56-1 methanol

LC50/96h	> 100 mg/l (piscis)
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38668-48-3 1,1'-(p-tolylimino)dipropan-2-ol

EC50/48h	28.8 mg/l (daphnia magna)
LC50/96h	17 mg/l (piscis)

- **Remark:** Very toxic for fish
- **General notes:** Water hazard class 2 (Self-assessment): hazardous for water
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms
Do not allow product to reach ground water, water course or sewage system, even in small quantities.

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:** Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.
Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Alcohol

14 Transport information· **DOT regulations:**

- **Hazard class:** 3
- **Identification number:** UN3269
- **Packing group:** III
- **Proper shipping name (technical name):** POLYESTER RESIN KIT
- **Label:** 3

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Trade name: Mixbond

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· Land transport ADR/RID (cross-border):



- ADR/RID class: 3 (F1) Flammable liquids
- Danger code (Kemler): -
- UN-Number: 3269
- Packaging group: III
- Description of goods: 3269 POLYESTER RESIN KIT

· Maritime transport IMDG:



- IMDG Class: 3
- UN Number: 3269
- Label: 3
- Packaging group: III
- EMS Number: F-E,S-E
- Marine pollutant: No
- Proper shipping name: POLYESTER RESIN KIT

· Air transport ICAO-TI and IATA-DGR:



- ICAO/IATA Class: 3
- UN/ID Number: 3269
- Label: 3
- Packaging group: III
- Proper shipping name: POLYESTER RESIN KIT

· UN "Model Regulation":

UN3269, POLYESTER RESIN KIT, 3, III

15 Regulations

· Sara

· Section 355 (extremely hazardous substances):

None of the ingredient is listed.

· Section 313 (Specific toxic chemical listings):

100-42-5 styrene

85-44-9 phthalic anhydride

67-56-1 methanol

· TSCA (Toxic Substances Control Act):

100-42-5 styrene

68611-44-9 Kieselsäure hydrophobiert hochdisperse

85-44-9 phthalic anhydride

1843-05-6 Octabenzon

8002-74-2 Paraffin waxes and Hydrocarbon waxes

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67-56-1	methanol	
38668-48-3	1,1'-(p-tolylimino)dipropan-2-ol	
· Proposition 65		
· Chemicals known to cause cancer:		
None of the ingredients is listed.		
· Chemicals known to cause reproductive toxicity for females:		
None of the ingredients is listed.		
· Chemicals known to cause reproductive toxicity for males:		
None of the ingredients is listed.		
· Chemicals known to cause developmental toxicity:		
None of the ingredients is listed.		
· Cancerogenity categories		
· EPA (Environmental Protection Agency)		
None of the ingredients is listed.		
· IARC (International Agency for Research on Cancer)		
100-42-5	styrene	2B
· NTP (National Toxicology Program)		
None of the ingredients is listed.		
· TLV (Threshold Limit Value established by ACGIH)		
100-42-5	styrene	A4
85-44-9	phthalic anhydride	A4
· MAK (German Maximum Workplace Concentration)		
100-42-5	styrene	5
· 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.		

· **Product related hazard informations:**

The product has been classified and marked in accordance with directives on hazardous materials.

· Hazard symbols:



Xn Harmful

· Hazard-determining components of labelling:

styrene

· Risk phrases:

Flammable.
Harmful by inhalation.
Irritating to eyes and skin.

· Safety phrases:

Keep out of the reach of children.
Do not breathe fumes
Avoid contact with skin and eyes.
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.
Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point
Wear suitable protective clothing, gloves and eye/face protection.

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In case of insufficient ventilation, wear suitable respiratory equipment.
If swallowed, seek medical advice immediately and show this container or label.
Use only in well-ventilated areas.

· **National regulations:**

· Information about limitation of use: Employment restrictions concerning young persons must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.

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

· VOC USA 374.1 g/l / 3.12 lb/gl

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 MSDS:**

Laboratory

· **Contact:**

Dieter Zimmermann

· **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)

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

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

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)

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· **International Product Registration Status**

AUS (Australian Inventory of Chemical Substances, AICS)

CDN (Canadian Domestic Substances List, DSL)

ROK (Korean Existing Chemical Inventory, ECI)