Safety data sheet
according to 1907/2006/EC, Article 31

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

· **1.1 Product identifier**
· Trade name: **OPTIMUM Knife Grade Vinylester**

· Article number: 12330
· UFI: -
· **1.2 Relevant identified uses of the substance or mixture and uses advised against** No further relevant information available.
· Application of the substance / the mixture Adhesives

· **1.3 Details of the supplier of the safety data sheet**
· Manufacturer/Supplier: GEMS Global Solutions for Chemicals & Tools
Via Monte Cengio 11/O
36073 Cornedo Vicentino (VI) - Italy

W. www.gemsitalia.com
T. +39 345 3602104

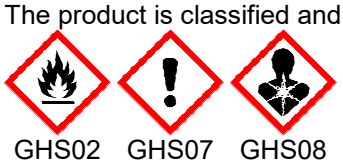
· Further information obtainable from: Laboratory
· **1.4 Emergency telephone number:** +39 (6) 490 663
Centro Antiveleni
Università di Roma
Policlinico Umberto I
Viale del Policlinico 155
00161 Roma

*
SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· Classification according to Regulation (EC) No 1272/2008

Flam. Liq. 3	H226	Flammable liquid and vapour.
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.
Repr. 2	H361d	Suspected of damaging the unborn child.
STOT SE 3	H335	May cause respiratory irritation.
STOT RE 1	H372	Causes damage to the hearing organs through prolonged or repeated exposure.
Aquatic Chronic 3	H412	Harmful to aquatic life with long lasting effects.

· **2.2 Label elements**
· Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.
· Hazard pictograms



GHS02 GHS07 GHS08

· Signal word Danger

· Hazard-determining components of labelling: styrene
2-ethyl-2-[(3-mercapto-1-oxopropoxy)methyl]propane-1,3-diylbis[3-mercaptopropionate]
methyl methacrylate
octabenzone
· Hazard statements H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

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H317 May cause an allergic skin reaction.
H361d Suspected of damaging the unborn child.
H335 May cause respiratory irritation.
H372 Causes damage to the hearing organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

· Precautionary statements
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read carefully and follow all instructions.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe vapours.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing 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.
P312 Call a POISON CENTER/doctor if you feel unwell.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
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: consisting of the following components.

· Dangerous components:

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	25-50%
CAS: 33007-83-9 EINECS: 251-336-1	2-ethyl-2-[(3-mercapto-1-oxopropoxy)methyl]propane-1,3-diylbis[3-mercaptopropionate] Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Acute Tox. 4, H302; Skin Sens. 1, H317	1-5%
CAS: 80-62-6 EINECS: 201-297-1 Index number: 607-035-00-6 Reg.nr.: 01-2119452498-28	methyl methacrylate Flam. Liq. 2, H225 Skin Irrit. 2, H315; Skin Sens. 1, H317; STOT SE 3, H335	1-5%
CAS: 38668-48-3 EINECS: 254-075-1 Reg.nr.: 01-2119980937-17	1,1'-(p-tolylimino)dipropan-2-ol Acute Tox. 2, H300 Eye Irrit. 2, H319 Aquatic Chronic 3, H412	<1%

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CAS: 1843-05-6 EINECS: 217-421-2 Reg.nr.: 01-2119557833-30-0000	octabenzone Skin Sens. 1B, 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.
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.

· 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

· **4.2 Most important symptoms and effects, both acute and delayed**
Headache
Dizziness
Dizziness
Breathing difficulty
Profuse sweating
Nausea

· 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.

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If swallowed or in case of vomiting, danger of entering the lungs.

* **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, e.g.:
Hydrogen cyanide (HCN)

· **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.

* **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.
Use only in well ventilated areas.
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
Ensure good ventilation/exhaustion at the workplace.

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· 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.
Protect from frost.
Keep container tightly sealed.
· Storage class: 3
· **7.3 Specific end use(s)** No further relevant information available.

*
SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· Additional information about design of technical facilities: No further data; see item 7.

· 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
80-62-6 methyl methacrylate	
WEL	Short-term value: 416 mg/m³, 100 ppm Long-term value: 208 mg/m³, 50 ppm

· DNELs

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/m³ Air (ARB)
		174.25-182.75 mg/m³ Air (BEV)
	DNEL (Langzeit-wiederholt)	85 mg/m³ Air (ARB)
		10.2 mg/m³ Air (BEV)
33007-83-9 2-ethyl-2-[(3-mercapto-1-oxopropoxy)methyl]propane-1,3-diylbis[3-mercaptopropionate]		
Dermal	DNEL (Langzeit-wiederholt)	0.14 mg/kg bw/day (ARB)
Inhalative	DNEL (Langzeit-wiederholt)	0.49 mg/m³ Air (ARB)
80-62-6 methyl methacrylate		
Oral	DNEL (Kurzzeit-akut)	0.25 mg/kg bw/day (BEV)
Dermal	DNEL (Kurzzeit-akut)	1.5 mg/kg bw/day (ARB)
		1.5 mg/kg bw/day (BEV)
	DNEL (Langzeit-wiederholt)	1.5-13.67 mg/kg bw/day (ARB)
		1.5-8.2 mg/kg bw/day (BEV)
Inhalative	DNEL (Kurzzeit-akut)	29.6-416 mg/m³ Air (ARB)
		6.3-104 mg/m³ Air (BEV)
	DNEL (Langzeit-wiederholt)	208 mg/m³ Air (ARB)
		74.3-104 mg/m³ Air (BEV)

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38668-48-3 1,1'-(p-tolylimino)dipropan-2-ol		
Oral	DNEL (Langzeit-wiederholt)	0.3 mg/kg bw/day (BEV)
Dermal	DNEL (Langzeit-wiederholt)	0.7 mg/kg bw/day (ARB)
		0.3 mg/kg bw/day (BEV)
Inhalative	DNEL (Langzeit-wiederholt)	2.47 mg/m³ Air (ARB)
		0.4 mg/m³ Air (BEV)
1843-05-6 octabenzone		
Oral	DNEL (Langzeit-wiederholt)	0.9 mg/kg bw/day (BEV)
Dermal	DNEL (Langzeit-wiederholt)	1.87 mg/kg bw/day (ARB)
		0.9 mg/kg bw/day (BEV)
Inhalative	DNEL (Langzeit-wiederholt)	6.6 mg/m³ Air (ARB)
		1.6 mg/m³ Air (BEV)

· PNECs

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)
33007-83-9 2-ethyl-2-[(3-mercapto-1-oxopropoxy)methyl]propane-1,3-diylbis[3-mercaptopropionate]	
PNEC (wässrig)	0.156 mg/l (SW)
80-62-6 methyl methacrylate	
PNEC (wässrig)	10 mg/l (KA)
	0.94 mg/l (MW)
	0.94 mg/l (SW)
	0.15-0.94 mg/l (WAS)
PNEC (fest)	1.47 mg/kg Trockengew (BO)
	0.73-45.38 mg/kg Trockengew (MWS)
	5.74 mg/kg Trockengew (SWS)
38668-48-3 1,1'-(p-tolylimino)dipropan-2-ol	
PNEC (wässrig)	199.5 mg/l (KA)
	0.0017 mg/l (MW)
	0.017 mg/l (SW)
	0.17 mg/l (WAS)
PNEC (fest)	0.005 mg/kg Trockengew (BO)
	0.00782 mg/kg Trockengew (MWS)
	0.0782 mg/kg Trockengew (SWS)
1843-05-6 octabenzone	
PNEC (wässrig)	1 mg/l (KA)
	0.0052 mg/l (MW)
	0.052 mg/l (SW)
	0.52 mg/l (WAS)
PNEC (fest)	66.1 mg/kg Trockengew (BO)
	10 mg/kg Trockengew (MWS)
	100 mg/kg Trockengew (SWS)

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· 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: Short term filter device:
Filter A/P2
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.

· 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.



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Skin protection agent recommendation for preventive skin shelter without use of protective gloves:
ARRETIL (http://www.stoko.com)
Skin protection agent recommendation for preventive skin shelter in application and combination of protective gloves:
STOKO EMULSION (http://www.stoko.com)
Skin protection recommendation for skin cleaning after product handling:
Kresto Classic (http://debstoko.com)
Skin protection agent recommendation for skin aftercare:
STOKO VITAN (http://www.stoko.com)
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 anylyses 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. 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 ≤ 6, 480 min
The exact break trough 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: Fluorocarbon rubber (Viton)

· As protection from splashes gloves made of the following materials are suitable:
Fluorocarbon rubber (Viton)
Butyl rubber, BR
Nitrile rubber, NBR

· Not suitable are gloves made of the following materials:
Natural rubber, NR
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:	Pasty
Colour:	Opaque
· Odour:	Specific type
· Odour threshold:	Not determined.
· pH-value:	Not applicable
· Change in condition	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	145.2 °C
· Flash point:	31-32 °C
· Flammability (solid, gas):	Not applicable.
· Ignition temperature:	480 °C
· Decomposition temperature:	Not determined.
· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
Lower:	1.2 Vol %
Upper:	8.9 Vol %
· Vapour pressure at 20 °C:	6 hPa
· Density at 20 °C:	1.1 g/cm³
· 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.
· Viscosity:	
Dynamic at 20 °C:	580 mPas
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	32.0 %
Solids content:	8.0 %
· **9.2 Other information**	No further relevant information available.

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SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability**
· Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.
· **10.3 Possibility of hazardous reactions** Exothermic polymerisation.
Reacts with peroxides and other radical forming substances.
Reacts with acids.
Reacts with strong alkali.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:** Carbon monoxide and carbon dioxide
Nitrogen oxides (NOx)
Hydrogen cyanide (prussic acid)

*
SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· Acute toxicity Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:

ATE (Acute Toxicity Estimates)		
Oral	LD50	>4,408-<22,704 mg/kg (rat)
Inhalative	LC50/4 h	38.8 mg/l

100-42-5 styrene		
Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat) (OECD-Prüfrichtlinie 402)
Inhalative	LC50/4h	9.5 mg/m3 (mouse)
		11,800 mg/m3 (rat)
	LC50/4 h	11.8 mg/l (rat)
	NOAEC	4.34 mg/l (rat)
33007-83-9 2-ethyl-2-[(3-mercapto-1-oxopropoxy)methyl]propane-1,3-diylbis[3-mercaptopropionate]		
Oral	LD50	1,000 mg/kg (rat)
80-62-6 methyl methacrylate		
Oral	LD50	7,872 mg/kg (rat) (OECD 401)
	NOAEL	2,000 mg/kg (rat)
Dermal	LD50	>5,000 mg/kg (rabbit)
Inhalative	LC50/4h	4,632 mg/m3 (rat)
	LC50/4 h	29.8 mg/l (rat)

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	NOAEL	25 mg/m³ (rat)
38668-48-3 1,1'-(p-tolylimino)dipropan-2-ol		
Oral	LD50	>25-<200 mg/kg (rat) (OECD 423)
Dermal	LD50	>2,000 mg/kg (rabbit) (OECD 402)
1843-05-6 octabenzone		
Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>5,000 mg/kg (rabbit)

· Primary irritant effect:
· Skin corrosion/irritation — Causes skin irritation.
· Serious eye damage/irritation — Causes serious eye irritation.
· Respiratory or skin sensitisation — May cause an allergic skin reaction.
· Experience with humans: — After incorporation and inhalation styrene predominantly will be metabolized in the organism to mandelic and phenylglyoxylic acid and matabolites will pass through urine excretion.
· Additional toxicological information:
· 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 (carcinogenity, 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
· Germ cell mutagenicity — Based on available data, the classification criteria are not met.
· Carcinogenicity — Based on available data, the classification criteria are not met.
· Reproductive toxicity — Suspected of damaging the unborn child.
· STOT-single exposure — May cause respiratory irritation.
· STOT-repeated exposure — Causes damage to the hearing organs through prolonged or repeated exposure.
· Aspiration hazard — Based on available data, the classification criteria are not met.

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SECTION 12: Ecological information

· **12.1 Toxicity**

· Aquatic toxicity:	
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 (selenastrum 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)

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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)
33007-83-9	**2-ethyl-2-[(3-mercapto-1-oxopropoxy)methyl]propane-1,3-diylbis[3-mercaptopropionate]**
EC50/48h	0.71 mg/l (daphnia magna)
LC50/96h	0.153 mg/l (Oncorhynchus mykiss)
80-62-6	**methyl methacrylate**
EC50/96h	170 mg/l (Pseudokirchneriella subcapitata)
EC50/48h	69 mg/l (daphnia magna) (OECD 202)
EC0	100 mg/l (pseudomonas putida)
NOEC	9.4 mg/kg (Danio rerio.) (OECD 210)
NOEC	>100 mg/l (Selenastrum capricornutum)
NOEC/21d	37 mg/l (daphnia magna) (OECD 202)
EC50/72h	>110 mg/l (Selenastrum capricornutum)
LC50/96h	153.9-341.8 mg/l (lem)
	>79 mg/l (Oncorhynchus mykiss) (OECD 203)
	125-275 mg/l (pimephales promelas)
	326.4-426.9 mg/l (poecilia reticulata)
38668-48-3	**1,1'-(p-tolylimino)dipropan-2-ol**
EC50/48h	28.8 mg/l (daphnia magna) (OECD 202)
EC20/0.5h	>1,995 mg/l (BES) (OECD 209)
EC50/72h	245 mg/l (Desmodesmus subspicatus) (OECD 201)
LC50/96h	17 mg/l (Brachydanio rerio)
1843-05-6	**octabenzone**
EC50/24h	52 mg/l (daphnia magna)
IC50	>100 mg/l (BES)
	52 mg/l (daphnia magna)
LC50	>100 mg/l (Brachydanio rerio)
EC50/48h	>0.0038 mg/l (daphnia magna)
EC20/3h	>100 mg/l (BES)
EC50/72h	>100 mg/l (Scenedesmus subspicatus)
LC50/96h	>100 mg/l (Brachydanio rerio) (OECD 203)

· **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

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· **12.5 Results of PBT and vPvB assessment**
· PBT: Not applicable.
· vPvB: Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

*
SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· Recommendation Must be specially treated adhering to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packaging:
· Recommendation: Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.
· Recommended cleansing agents: Alcohol
acetone

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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 B

· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

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· Transport/Additional information:	
· ADR	
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· Remarks:	Without hardener component: no dangerous goods < 450 l
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: See SP340
· Remarks:	Without hardener component: no dangerous goods < 30 l
· IATA	
· Remarks:	Without hardener component: 3/III UN 1866 Resin Solution
· UN "Model Regulation":	UN 3269 POLYESTER RESIN KIT, 3, III

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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
· National regulations:	
· Information about limitation of use:	Employment restrictions concerning pregnant and lactating women must be observed. Employment restrictions concerning juveniles must be observed.
· Waterhazard class:	Water hazard class 2 (Self-assessment): hazardous for water.
· VOC EU	375.8 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.
H300 Fatal if swallowed.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H361d Suspected of damaging the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.

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H410 Very toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

· Recommended restriction of use: refer to Technical Data Sheet (TDS)

· Department issuing SDS: Laboratory

· Abbreviations and acronyms:
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 relatif au transport international 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)
PNEC: 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. 2: Acute toxicity – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
Skin Sens. 1B: Skin sensitisation – Category 1B
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
Asp. Tox. 1: Aspiration hazard – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

· * Data compared to the previous version altered. Adaptation in accordance with REACH directive 1907/2006/EC