

Printing date 16.03.2021 Version number 6 Revision: 16.03.2021

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

- · 1.1 Product identifier
 - Trade name: Technovit 4000 syrup 1
- · 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 Resin for metallographic testing
- · 1.3 Details of the supplier of the safety data sheet
 - Manufacturer/Supplier:

Kulzer GmbH

Leipziger Straße 2, 63450 Hanau (Germany) Tel.: +49 (0)6181 9689-2570 (Wehrheim)

- · Informing department: email: technik.wehrheim@kulzer-dental.com
- 1.4 Emergency telephone number: Emergency CONTACT (24-Hour-Number): +49 (0)6132-84463

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.

H361d Suspected of damaging the unborn child.

STOT RE 1 H372 Causes damage to the hearing organs through prolonged or repeated exposure.

· 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:

methyl methacrylate

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.
H372 Causes damage to the hearing organs through prolonged or repeated exposure.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition

sources. No smokina.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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P302+P352 IF ON SKIN: Wash with plenty of soap and 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. IF exposed or concerned: Call a POISON CENTER/doctor.

P308+P311 IF exposed or co P405 Store locked up.

· 2.3 Other hazards

Results of PBT and vPvB assessment

· **PBT:** Not applicable. · **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· 3.2 Chemical characterisation: Mixtures

· **Description:** Product based on methacrylates

Dangerous components:		
CAS: 100-42-5 EINECS: 202-851-5 Reg.nr.: 01-2119452498-28- 0000	styrene Flam. Liq. 3, H226 Repr. 2, H361d; STOT RE 1, H372 Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319	≥25-≤50%
CAS: 80-62-6 EINECS: 201-297-1 Reg.nr.: 01-2119452498-28- XXXX	methyl methacrylate Flam. Liq. 2, H225 Skin Irrit. 2, H315; Skin Sens. 1, H317; STOT SE 3, H335 Acute Tox. 5, H333	≥1-<10%
CAS: 123-31-9 EINECS: 204-617-8 Reg.nr.: 01-2119524016-51-xxxx	1,4-dihydrxybenzene Muta. 2, H341; Carc. 2, H351 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=10) Acute Tox. 4, H302; Skin Sens. 1, H317	≥0.025-<0.1%

[·] 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

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Take affected persons out of danger area and instruct to lie down.

Personal protection for the First Aider.

· After inhalation

Supply fresh air; consult doctor in case of symptoms.

In case of unconsciousness bring patient into stable side position for transport.

· After skin contact

Instantly wash with water and soap and rinse thoroughly.

If skin irritation or rash occurs: Get medical advice/attention.

After eye contact

Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor. Remove contact lenses, if present and easy to do. Continue rinsing.

· After swallowing

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; instantly call for medical help.

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

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• **4.3 Indication of any immediate medical attention and special treatment needed**No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

· Suitable extinguishing agents

CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents Water with a full water jet.

· 5.2 Special hazards arising from the substance or mixture

Can form explosive gas-air mixtures.

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

Can be released in case of fire

Carbon dioxide (CO2)

Carbon monoxide (CO)

· 5.3 Advice for firefighters

- · Protective equipment: Wear self-contained breathing apparatus.
- · Additional information -

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Avoid contact with eyes and skin.

Ensure adequate ventilation

Keep away from ignition sources

· 6.2 Environmental precautions:

Do not allow to enter drainage system, surface or ground water.

Keep dirty washing water for appropriate disposal.

6.3 Methods and material for containment and cleaning up:

Absorb with liquid-binding material (diatomite, universal binders, for small amounts tissues).

Send for recovery or disposal in suitable containers.

· 6.4 Reference to other sections

See Section 13 for information on disposal.

See Section 8 for information on personal protection equipment.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep containers tightly sealed.

Prevent formation of aerosols.

Avoid contact with eyes and skin.

Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).

Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Fumes can combine with air to form an explosive mixture.

Do not spray on flames or red-hot objects.

Protect against electrostatic charges.

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- · 7.2 Conditions for safe storage, including any incompatibilities
 - · Storage
 - Requirements to be met by storerooms and containers: Store in cool, dry place in tightly closed containers.

 - Information about storage in one common storage facility: Not required. Further information about storage conditions: None.
- · 7.3 Specific end use(s) No further relevant information available.

· Additio			ign of technical systems: No further data; see item 7.
		tical values t	that require monitoring at the workplace:
100-42-5 s			
WEL (Great Britain)		Short-term value: 1080 mg/m³, 250 ppm Long-term value: 430 mg/m³, 100 ppm	
	ethyl methacry		
WEL (Gre	at Britain)	Short-term v Long-term va	alue: 416 mg/m³, 100 ppm alue: 208 mg/m³, 50 ppm
IOELV (European Union) S		Short-term value: 100 ppm Long-term value: 50 ppm	
	1,4-dihydrxybe		
WEL (Gre	at Britain)	Long-term va	alue: 0.5 mg/m³
· L	DNELs	-	
100-42-5 s	styrene		
Oral	ge.pop., l.te, sy	⁄st.	2.1 mg/Kg (nd)
Dermal	worker industr.	, l.te., syst.	406 mg/Kg/d (nd)
	ge.pop., l.te, sy	∕st.	343 mg/Kg/d (nd)
Inhalative worker industr., acute, sys		, acute, syst.	289 mg/m3 (nd)
	worker industr.	, l.te., syst.	85 mg/m3 (nd)
worker industr.		, l.te., local	306 mg/m3 (nd)
	ge.pop., acu., s	syst.	174.25 mg/m3 (nd)
	ge.pop., l.te, syst.		10.2 mg/m3 (nd)
	ge.pop., l.te, local		182.75 mg/m3 (nd)
80-62-6 m	ethyl methacry	/late	
Oral	ge.pop., l.te, sy	⁄st.	8.2 mg/Kg (nd)
Dermal	worker industr.	, l.te., syst.	13.67 mg/Kg/d (nd)
	ge.pop., l.te, syst.		8.2 mg/Kg/d (nd)
Inhalative	worker industr.	, acute, local	416 mg/m3 (nd)
	worker industr.	, l.te., syst.	348.4 mg/m3 (nd)
	worker industr.	, l.te., local	208 mg/m3 (nd)
	ge.pop., acu., local		208 mg/m3 (nd)
	ge.pop., l.te, sy	∕st.	74.3 mg/m3 (nd)
123-31-9 1	1,4-dihydrxybe	nzene	
Oral	ge.pop., l.te, sy	⁄st.	0.6 mg/Kg (nd)



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Dermal		lustr., l.te., syst.	3.33 mg/Kg/d (nd)	
	ge.pop., I.t	te, syst.	1.66 mg/Kg/d (nd)	
Inhalative	worker ind	lustr., l.te., syst.	2.1 mg/m3 (nd)	
	ge.pop., l.t	te, syst.	1.05 mg/m3 (nd)	
· J	PNECs			
100-42-5	styrene			
freshwater	r	0.028 mg/l (nd)		
marine wa	ter	0.014 mg/l (nd)		
STP		5 mg/l (nd)		
sedim., dv	v, fre.wat.	0.614 mg/Kg (nd)	
sedim., dv	v, mar.wat.	0.307 mg/Kg (nd)	
soil,dw		0.2 mg/Kg (nd)		
80-62-6 m	ethyl meth	nacrylate		
freshwater	r	0.94 mg/l (aqua)		
		0.94 mg/l (nd)		
marine wa	ter	0.094 mg/l (nd)		
STP		10 mg/l (nd)		
sedim., dv	v, fre.wat.	10.2 mg/Kg (nd)		
sedim., dv	v, mar.wat.	0.102 mg/Kg (nd)	
soil,dw		1.48 mg/Kg (nd)		
123-31-9	1,4-dihydr	cybenzene		
freshwater	r	0.00057 mg/l (nd	()	
marine wa	ter	0.000057 mg/l (n	nd)	
STP		0.71 mg/l (nd)		
sedim., dv	v, fre.wat.	0.0049 mg/Kg (n	d)	
sedim., dv	v, mar.wat.	0.00049 mg/Kg (nd)	
soil,dw		0.00064 mg/Kg (nd)	

[·] Additional information: The lists that were valid during the compilation were used as basis.

· 8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures

Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Breathing equipment:

Use breathing protection in case of insufficient ventilation.

Filter A.

· Protection of hands:

If skin contact cannot be avoided, protective gloves are recommended to avoid possible sensitization.

Solvent resistant gloves

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

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

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· Material of gloves

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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. Fluorocarbon rubber (Viton)

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.

· Eye protection: Safety glasses

· Body protection: Light weight protective clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and General Information	chemical properties
· Appearance: · Form: · Colour:	Fluid Yellow Cream coloured Colourless
· Smell: · Odour threshold:	Characteristic Not determined.
· pH-value:	Not determined.
· Change in condition · Melting point/freezing point: · Initial boiling point and boiling r	Not determined range: 145 °C
· Flash point:	>33 °C
· Inflammability (solid, gaseous)	Not applicable.
· Ignition temperature:	490 °C
Decomposition temperature:	Not determined.
· Self-inflammability:	Product is not selfigniting.
Explosive properties:	Product is not explosive. However, formation o explosive air/vapour mixtures is possible.
· Critical values for explosion: · Lower: · Upper:	1.2 Vol % 8.9 Vol %
· Steam pressure at 20 °C:	37.8 hPa
Density at 20 °C Relative density Vapour density Evaporation rate	1.1 g/cm³ Not determined. Not determined. Not determined.
· Solubility in / Miscibility with · Water:	Not miscible or difficult to mix
· Partition coefficient: n-octanol/wate	er: Not determined.

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Viscosity:

· dynamic: Not determined. · kinematic: Not determined.

• 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
 - Conditions to be avoided: No decomposition if used and stored according to specifications.
- · 10.3 Possibility of hazardous reactions No dangerous reactions known
- · 10.4 Conditions to avoid No further relevant information available.
- · 10.5 Incompatible materials: Strong oxidizers
- · 10.6 Hazardous decomposition products: None

SECTION 11: Toxicological information

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

· LD/	LC50 valu	es that are relevant for classification:
100-42-5	styrene	
Dermal	LD50	>2,000 mg/kg (rat) (OECD 402)
Inhalative	LC50/4 h	11.8 mg/l (rat)
80-62-6 m	ethyl met	hacrylate
Oral	LD50	~7,900 mg/kg (rat)
Dermal	LD50	>5,000 mg/kg (rab) (OECD 402)
Inhalative	LC50/4 h	29.8 mg/l (rat)
123-31-9	1,4-dihydr	xybenzene
Oral	LD50	>375 mg/kg (rat) (OECD 401)
Dermal	LD50	>2,000 mg/kg (rabbit) (OECD 402)

- 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.
- Additional toxicological information:
 - · CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
 - · CMR effects (carcinogenity, mutagenicity and toxicity for reproduction) Repr. 2
 - 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 Based on available data, the classification criteria are not met.
 - STOT-repeated exposure

Causes damage to the hearing organs through prolonged or repeated exposure.

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

SECTION 12: Ecological information 12.1 Toxicity Aquatic toxicity: 100-42-5 styrene

EL50/48h 4.7 mg/L (daphnia) (OECD 202) LC50/96h 10 mg/l (fish) (OECD 203)

LC50/96h 10 mg/l (fish) (OECD 203) ErC50 / 72 h 4.9 mg/l (algae) (EPA OTS 797.1050)

NOEC / 48h | 1.9 mg/l (daphnia) (OECD 202)

80-62-6 methyl methacrylate

EC50/21d 49 mg/L (daphnia) (OECD 211)

EC50/48h 69 mg/l (daphnia) (EPA OTS 797.1300)

NOEC / 21d | 37 mg/l (daphnia) (OECD 211)

ErC50 / 72 h >110 mg/l (algae) (OECD 201)

NOEC / 72h | 110 mg/l (algae) (OECD 201)

NOEC / 48h | 48 mg/l (daphnia) (EPA OTS 797.1300)

EbC50 / 72h | >110 mg/l (algae) (OECD 201)

NOEC/ 35d 9.4 mg/L (fish) (OECD 210)

LC50/ 35d 33.7 mg/L (fish) (OECD 210)

123-31-9 1,4-dihydrxybenzene

· 12.2 Persistence and degradability

100-42-5 styrene

Biodegradation 70.9-100 % /28d (nd)

80-62-6 methyl methacrylate

Biodegradation 94 % /14d (nd) (OECD 301C)

123-31-9 1,4-dihydrxybenzene

Biodegradation 70 % /14d (nd) (OECD 301C)

- 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 bodies or sewage system.

Danger to drinking water if even small quantities leak into soil.

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

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SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

Recommendation

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

Small quantities can be polymerized with the matching system component(s) and the cured solid material can be disposed of with the regular garbage. Larger quantities must be disposed of following the regulations of the local authorities.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information	on	
14.1 UN-Number · ADR, IMDG, IATA	UN1866	
14.2 UN proper shipping name · ADR · IMDG, IATA	1866 RESIN SOLUTION RESIN SOLUTION	
14.3 Transport hazard class(es) · ADR		
· Class · Label	3 (F1) Flammable liquids. 3	
· IMDG, IATA		
· Class · Label	3 Flammable liquids. 3	
14.4 Packing group · ADR, IMDG, IATA	III	
14.5 Environmental hazards: • Marine pollutant:	No	
14.6 Special precautions for user · Kemler Number: · EMS Number: · Stowage Category	Warning: Flammable liquids. 30 F-E, <u>S-E</u> A	
14.7 Transport in bulk according to Anno Marpol and the IBC Code	ex II of Not applicable.	



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· ADR

Limited quantities (LQ)

Excepted quantities (ÉQ)

Code: E1

Maximum net quantity per inner

packaging: 30 ml

Maximum net quantity per outer

packaging: 1000 ml

· Transport category Tunnel restriction code

· Limited quantities (LQ) Excepted quantities (ÉQ)

Code: E1

D/E

Maximum net quantity per inner

packaging: 30 ml

Maximum net quantity per outer

packaging: 1000 ml

UN 1866 RESIN SOLUTION, 3, III UN "Model Regulation":

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 young persons must be observed.

Employment restrictions concerning pregnant and lactating women must be observed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they 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.

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.

H319 Causes serious eve irritation.

H332 Harmful if inhaled.

H333 May be harmful if inhaled. H335 May cause respiratory irritation.

H341 Suspected of causing genetic defects.

H351 Suspected of causing cancer.

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H361d Suspected of damaging the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

Abbreviations and acronyms:

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

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)
LCEO: Lethal concentration, 50 percent

LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

VPVB: Very Persistent and Very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 5: Acute toxicity – Category 5
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
Skin Sens. 1: Skin sensitisation – Category 2
Muta. 2: Germ cell mutagenicity – Category 2

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

* Data compared to the previous version altered.