

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

Printing date 04.03.2021

Version number 2

Revision: 04.03.2021

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

- **1.1 Product identifier**
 - Trade name: **Technovit 4021 Flüssigkeit**
- **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**
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
- **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**



GHS07

- **Signal word** Warning
- **Hazard-determining components of labelling:**
methacrylic acid, monoester with propane-1,2-diol
triethylen glycol dimethacrylate
2,2'-[(4-methylphenyl)imino]bisethanol
- **Hazard statements**
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
- **Precautionary statements**
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
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.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
- **2.3 Other hazards -**
 - **Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.

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SECTION 3: Composition/information on ingredients

3.2 Chemical characterisation: Mixtures

Description: -

Dangerous components:

CAS: 27813-02-1 EINECS: 248-666-3 Reg.nr.: 01-2119490226-37-xxxx	methacrylic acid, monoester with propane-1,2-diol Eye Irrit. 2, H319; Skin Sens. 1, H317	75-90%
CAS: 109-16-0 EINECS: 203-652-6 Reg.nr.: 01-2119969287-21-xxxx	triethylen glycol dimethacrylate Skin Sens. 1B, H317	≥5-≤10%
CAS: 3077-12-1 EINECS: 221-359-1	2,2'-[(4-methylphenyl)imino]bisethanol Eye Dam. 1, H318 Acute Tox. 4, H302; Skin Sens. 1, H317 Aquatic Chronic 3, H412	≥0.1-<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

Instantly remove any clothing soiled by the product.

Personal protection for the First Aider.

After inhalation Supply fresh air; consult doctor in case of symptoms.

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. Then consult doctor.

Remove contact lenses, if present and easy to do. Continue rinsing.

After swallowing In case of persistent symptoms consult doctor.

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

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, sand, extinguishing powder. Do not use water.

For safety reasons unsuitable extinguishing agents Water.

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 dioxide (CO₂)

Carbon monoxide (CO)

5.3 Advice for firefighters

Protective equipment: Wear self-contained breathing apparatus.

Additional information -

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SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Avoid contact with eyes and skin.
Ensure adequate ventilation
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:** Prevent material from reaching sewage system, holes and cellars.
- **6.3 Methods and material for containment and cleaning up:**
Dispose of the material collected according to regulations.
Absorb with liquid-binding material (diatomite, universal binders, for small amounts tissues).
- **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 information on disposal.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Prevent formation of aerosols.
Do not seal containers gas-tight.
Avoid contact with eyes and skin.
Ensure good ventilation/exhaustion at the workplace.
· **Information about protection against explosions and fires:** Protect from heat.
- **7.2 Conditions for safe storage, including any incompatibilities**
 - **Storage**
 - **Requirements to be met by storerooms and containers:**
Store only in the original container.
 - **Information about storage in one common storage facility:** Not required.
 - **Further information about storage conditions:**
Store container in a well ventilated position.
Store in a cool place.
Protect from heat and direct sunlight.
Protect from humidity and keep away from water.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
 - **Components with critical values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Not required.

· DNELs		
27813-02-1 methacrylic acid, monoester with propane-1,2-diol		
Oral	ge.pop., l.te, syst.	2.5 mg/Kg (nd)
Dermal	worker industr., l.te., syst.	4.2 mg/Kg/d (nd)
	ge.pop., l.te, syst.	2.5 mg/Kg/d (nd)
Inhalative	worker industr., l.te., syst.	14.7 mg/m ³ (nd)
	ge.pop., l.te, syst.	8.8 mg/m ³ (nd)

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109-16-0 triethylen glycol dimethacrylate

Oral	ge.pop., l.te, syst.	8.33 mg/Kg (nd)
Dermal	worker industr., l.te., syst.	13.9 mg/Kg/d (nd)
	ge.pop., l.te, syst.	8.33 mg/Kg/d (nd)
Inhalative	worker industr., l.te., syst.	48.5 mg/m ³ (nd)
	ge.pop., l.te, syst.	14.5 mg/m ³ (nd)

3077-12-1 2,2'-[(4-methylphenyl)imino]bisethanol

Oral	ge.pop., l.te, syst.	0.16 mg/Kg (nd)
Dermal	worker industr., l.te., syst.	0.47 mg/Kg/d (nd)
	ge.pop., l.te, syst.	0.17 mg/Kg/d (nd)
Inhalative	worker industr., l.te., syst.	3.29 mg/m ³ (nd)
	ge.pop., l.te, syst.	0.58 mg/m ³ (nd)

· PNECs
27813-02-1 methacrylic acid, monoester with propane-1,2-diol

freshwater	0.904 mg/l (nd)
marine water	0.904 mg/l (nd)
STP	10 mg/l (nd)
sedim., dw, fre.wat.	6.28 mg/Kg (nd)
sedim., dw, mar.wat.	6.28 mg/Kg (nd)
soil,dw	0.727 mg/Kg (nd)

109-16-0 triethylen glycol dimethacrylate

freshwater	0.016 mg/l (nd)
marine water	0.002 mg/l (nd)
STP	1.7 mg/l (nd)
sedim., dw, fre.wat.	0.185 mg/Kg (nd)
sedim., dw, mar.wat.	0.018 mg/Kg (nd)
soil,dw	0.027 mg/Kg (nd)

3077-12-1 2,2'-[(4-methylphenyl)imino]bisethanol

freshwater	0.026 mg/l (nd)
marine water	0.003 mg/l (nd)
STP	10 mg/l (nd)
sedim., dw, fre.wat.	0.121 mg/Kg (nd)
sedim., dw, mar.wat.	0.012 mg/Kg (nd)
soil,dw	0.009 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.
 Avoid contact with the eyes and skin.

· Breathing equipment:

Use breathing protection in case of insufficient ventilation.
 Filter A/P2.

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· **Protection of hands:**

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

Check protective gloves prior to each use for their proper condition.

· **Material of gloves**

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.

NBR: acrylonitrile-butadiene rubber (0,11 mm)

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

>30 min

· **Eye protection:** Safety glasses

· **Body protection:** Light weight protective clothing

SECTION 9: Physical and chemical properties

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

· **General Information**

· **Appearance:**

· **Form:**

Fluid

· **Colour:**

Clear

· **Smell:**

Characteristic

· **Odour threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition**

· **Melting point/freezing point:**

Not determined

· **Initial boiling point and boiling range:** Not determined

· **Flash point:**

Not applicable

· **Inflammability (solid, gaseous)**

Not applicable.

· **Decomposition temperature:**

Not determined.

· **SAPT**

Technovit 4021 Flüssigkeit >75 °C

· **Self-inflammability:**

Product is not selfigniting.

· **Explosive properties:**

Product is not explosive.
Not determined.

· **Critical values for explosion:**

· **Lower:**

Not determined.

· **Upper:**

Not determined.

· **Steam pressure:**

Not determined.

· **Density at 20 °C**

1.03599 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:** 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** Exothermic polymerisation
- **10.4 Conditions to avoid**
 - moisture exposure
 - Heat, flames and sparks.
- **10.5 Incompatible materials:**
 - amine
 - organic peroxides
 - Radical initiator
 - reducing agent
 - Strong bases
 - Strong oxidizers
 - Strong acids
- **10.6 Hazardous decomposition products:** None
- **Additional information:** -

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 that are relevant for classification:**

27813-02-1 methacrylic acid, monoester with propane-1,2-diol

Oral	LD50	>2,000 mg/kg (rat) (OECD 401)
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Dermal	LD50	>5,000 mg/kg (rab)
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109-16-0 triethylen glycol dimethacrylate

Oral	LD50	8,300 mg/kg (rat)
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Dermal	LD50	>2,000 mg/kg (mouse)
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3077-12-1 2,2'-[(4-methylphenyl)imino]bisethanol

Oral	LD50	959 mg/kg (rat) (OECD 401)
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Dermal	LD50	>2,000 mg/kg (rat) (OECD 402)
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· **Primary irritant effect:**

- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.

- **Serious eye damage/irritation**

Causes serious eye irritation.

- **Respiratory or skin sensitisation**

May cause an allergic skin reaction.

- **Additional toxicological information:**

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

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

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- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

27813-02-1 methacrylic acid, monoester with propane-1,2-diol

EC50/72h	>97.2 mg/l (algae)
EC50/48h	>143 mg/l (daphnia) (OECD 202)
NOEC / 21d	45.2 mg/l (daphnia) (OECD 211)
ErC50 / 72 h	>97.2 mg/l (algae) (OECD 201)
NOEC / 72h	>97.2 mg/l (algae) (OECD 201)
LC50/48h	483 mg/L (fish)

109-16-0 triethylen glycol dimethacrylate

EC50/21d	51.9 mg/L (daphnia) (OECD 211)
LC50/96h	16.4 mg/l (fish) (OECD 203)
NOEC / 21d	32 mg/l (daphnia) (OECD 211)
ErC50 / 72 h	>100 mg/l (algae) (OECD 201)
NOEC / 72h	18.6 mg/l (algae) (OECD 201)
EbC50 / 72h	72.8 mg/l (algae) (OECD 201)

3077-12-1 2,2'-[(4-methylphenyl)imino]bisethanol

EC50/48h	48 mg/l (daphnia) (OECD 202)
LC50/96h	>100 mg/l (fish) (OECD 203)
ErC50 / 72 h	>100 mg/l (algae) (OECD 201)
NOEC / 72h	100 mg/l (algae) (OECD 201)

12.2 Persistence and degradability

27813-02-1 methacrylic acid, monoester with propane-1,2-diol

Biodegradation	81 % /28d (nd) (OECD 301C)
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109-16-0 triethylen glycol dimethacrylate

Biodegradation	85 % /28d (nd) (OECD 301B; ISO/9439/EEC 92/69/V, C.4-C)
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3077-12-1 2,2'-[(4-methylphenyl)imino]bisethanol

Biodegradation	1.5 % /29d (nd) (OECD 301D)
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- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **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.

Disposal must be made according to official regulations.

· **Uncleaned packagings:**

· **Recommendation:**

Disposal must be made according to official regulations.

Non contaminated packagings can be used for recycling.

· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

· **14.1 UN-Number**

· ADR, IMDG, IATA

Void

· **14.2 UN proper shipping name**

· ADR, IMDG, IATA

Void

· **14.3 Transport hazard class(es)**

· ADR, ADN, IMDG, IATA

· Class

Void

· **14.4 Packing group**

· ADR, IMDG, IATA

Void

· **14.5 Environmental hazards:**

Not applicable.

· **14.6 Special precautions for user**

Not applicable.

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

Not applicable.

· **Transport/Additional information:**

-

· **UN "Model Regulation":**

Void

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** not assigned

· **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**

H302 Harmful if swallowed.

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H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects.

Abbreviations and acronyms:

SAPT: Self Accelerating Polymerisation Temperature

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

Acute Tox. 4: Acute toxicity – Category 4

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 1

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

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

*** Data compared to the previous version altered.**

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