

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

Printing date 27.04.2021

Version number 4

Revision: 27.04.2021

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

- **1.1 Product identifier**
 - Trade name: **Technovit 4004 Powder**
- **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
 Aquatic Chronic 2 H411 Toxic 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



GHS09

- **Signal word** Void
- **Hazard statements**
 H411 Toxic to aquatic life with long lasting effects.
- **Precautionary statements**
 P273 Avoid release to the environment.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Additional information:**
 Contains methyl methacrylate, dibenzoyl peroxide. May produce an allergic reaction.
- **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: -

· **Dangerous components:**

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	≥0.1-<1%
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Trade name: Technovit 4004 Powder

CAS: 94-36-0	dibenzoyl peroxide	(Contd. of page 1)
EINECS: 202-327-6	Self-react. B, H241; Org. Perox. B, H241	≥0.25-<1%
Reg.nr.: 01-2119511472-50-xxxx	Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10)	
	Eye Irrit. 2, H319; Skin Sens. 1, H317	

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
 - **General information** No special measures required.
 - **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. If symptoms persist, consult doctor.
Remove contact lenses, if present and easy to do. Continue rinsing.
 - **After swallowing**
In case of persistent symptoms consult doctor.
Rinse out mouth and then drink plenty of water.
- **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **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**
Combustible solids. Fine dust clouds can form explosive mixtures with air.
Formation of toxic gases is possible during heating or in case of fire.
Can be released in case of fire
Carbon monoxide (CO)
Carbon dioxide (CO₂)
- **5.3 Advice for firefighters**
 - **Protective equipment:**
Wear self-contained breathing apparatus.
(EN 133)
 - **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

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.
Avoid causing dust.
Keep away from ignition sources

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- **6.2 Environmental precautions:**
 Prevent material from reaching sewage system, holes and cellars.
 Inform respective authorities in case product reaches water or sewage system.
 Damp down dust with water spray jet.
- **6.3 Methods and material for containment and cleaning up:**
 Collect mechanically.
 Dispose of the material collected according to regulations.
- **6.4 Reference to other sections**
 No dangerous materials are released.
 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**
 No special measures required.
 Provide suction extractors if dust is formed.
 Avoid contact with eyes and skin.
 Any deposit of dust which cannot be avoided must be removed regularly.
 Prevent formation of dust.
 Use appropriate industrial vacuum cleaners or central vacuum systems for dust removal.
- **Handling**
 do not mix with
 Strong oxidizers
 reducing agent
 Strong bases
 Strong acids
 metals
- **Information about protection against explosions and fires:**
 Protect against electrostatic charges.
 Dust can combine with air to form an explosive mixture.
 Keep ignition sources away - Do not smoke.
 Use only in explosion-proof area.
- **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:** Protect from heat and direct sunlight.
- **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 systems:** No further data; see item 7.
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· Components with critical values that require monitoring at the workplace:

80-62-6 methyl methacrylate

WEL (Great Britain)	Short-term value: 416 mg/m ³ , 100 ppm Long-term value: 208 mg/m ³ , 50 ppm
IOELV (European Union)	Short-term value: 100 ppm Long-term value: 50 ppm

94-36-0 dibenzoyl peroxide

WEL (Great Britain)	Long-term value: 5 mg/m ³
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· DNELs

80-62-6 methyl methacrylate

Oral	ge.pop., l.te, syst.	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/m ³ (nd)
	worker industr., l.te., syst.	348.4 mg/m ³ (nd)
	worker industr., l.te., local	208 mg/m ³ (nd)
	ge.pop., acu., local	208 mg/m ³ (nd)
	ge.pop., l.te, syst.	74.3 mg/m ³ (nd)

94-36-0 dibenzoyl peroxide

Oral	ge.pop., l.te, syst.	2 mg/Kg (nd)
Dermal	worker industr., l.te., syst.	13.3 mg/Kg/d (nd)
Inhalative	worker industr., l.te., syst.	39 mg/m ³ (nd)

· PNECs

80-62-6 methyl methacrylate

freshwater	0.94 mg/l (aqua)
	0.94 mg/l (nd)
marine water	0.094 mg/l (nd)
STP	10 mg/l (nd)
sedim., dw, fre.wat.	10.2 mg/Kg (nd)
sedim., dw, mar.wat.	0.102 mg/Kg (nd)
soil,dw	1.48 mg/Kg (nd)

94-36-0 dibenzoyl peroxide

freshwater	0.00002 mg/l (nd)
marine water	0.000002 mg/l (nd)
STP	0.35 mg/l (nd)
sedim., dw, fre.wat.	0.013 mg/Kg (nd)
sedim., dw, mar.wat.	0.001 mg/Kg (nd)
soil,dw	0.003 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

The usual precautionary measures should be adhered to in handling the chemicals.

Do not eat or drink while working.

Keep away from foodstuffs, beverages and food.

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- Avoid contact with the skin.
- **Breathing equipment:**
 Use breathing protection in case of insufficient ventilation.
 Use a mask with particle filter in case of dust generation.
- **Protection of hands:**
 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
 Check protective gloves prior to each use for their proper condition.
 chemical protection gloves are suitable, which are tested according to EN 374
 - **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 trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
 >30 min
- **Eye protection:** eye protection (EN 166)
- **Body protection:** Light weight protective clothing
- **Limitation and supervision of exposure into the environment**
 Do not allow to enter the ground/soil.
 Do not allow to enter drainage system, surface or ground water.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
 - **General Information**
 - **Appearance:**
 - **Form:** Powder
 - **Colour:** According to product specification
 - **Smell:** Odourless
 - **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.
 - **Self-inflammability:** Product is not selfigniting.
 - **Explosive properties:** Product is not explosive.
Not determined.
 - **Critical values for explosion:**
 - **Lower:** Not determined.

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· Upper:	Not determined.
· Steam pressure:	Not determined. Not applicable.
· Density	Not determined
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· Water:	Not miscible or difficult to mix
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
· dynamic:	Not determined. Not applicable.
· kinematic:	Not determined. Not applicable.
· Solvent content:	
· Water:	0.9 %
· Solids content:	100.0 %
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
 - **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**
Heat, flames and sparks.
Avoid dust formation.
- **10.5 Incompatible materials:**
metals
reducing agent
Strong oxidizers
Strong bases
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:**

80-62-6 methyl methacrylate

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)

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94-36-0 dibenzoyl peroxide

Oral	LD0	>2,000 mg/kg (mouse) (OECD 401)
Inhalative	LC0/4h	24.3 ppm (rat) (OECD 403)

- **Primary irritant effect:**
 - **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
 - **Serious eye damage/irritation**
Based on available data, the classification criteria are not met.
 - **Respiratory or skin sensitisation**
Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
 - **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
 - **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** 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:**

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)

94-36-0 dibenzoyl peroxide

EC50/72h	0.042 mg/l (algae) (OECD 201)
EC50/48h	0.11 mg/l (daphnia) (OECD 202)
LC50/96h	0.06 mg/l (fish) (OECD 203)
ErC50 / 72 h	0.071 mg/l (algae) (OECD 201)
NOEC / 72h	0.02 mg/l (algae) (OECD 201)
NOEC / 96h	0.032 mg/l (fish) (OECD 203)
NOEC / 48h	0.076 mg/l (daphnia) (OECD 202)
ErC10	0.001 mg/L /21d (daphnia) (OECD 211)

· **12.2 Persistence and degradability**

80-62-6 methyl methacrylate

Biodegradation	94 % /14d (nd) (OECD 301C)
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94-36-0 dibenzoyl peroxide

Biodegradation	71 % /28d (nd) (OECD 301D)
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· **12.3 Bioaccumulative potential** No further relevant information available.

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- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
 - **General notes:**
 - Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
 - Avoid transfer into the environment.
 - 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.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
 - **Recommendation**
 - Small quantities can be polymerized with the matching system component(s) and the cured solid material can be disposed of with the regular garbage.
 - 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.

SECTION 14: Transport information

- **14.1 UN-Number**
 - **ADR, IMDG, IATA** UN3077
- **14.2 UN proper shipping name**
 - **ADR** 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (dibenzoyl peroxide, 2-ethylhexyl thioglycolate)
 - **IMDG, IATA** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (dibenzoyl peroxide, 2-ethylhexyl thioglycolate)
- **14.3 Transport hazard class(es)**
 - **ADR**


 - **Class** 9 (M7) Miscellaneous dangerous substances and articles.

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· Label	9
· IMDG	
	
· Class	9 Miscellaneous dangerous substances and articles.
· Label	9
· IATA	
	
· Class	9 Miscellaneous dangerous substances and articles.
· Label	9
· 14.4 Packing group · ADR, IMDG, IATA	III
· 14.5 Environmental hazards:	
· Marine pollutant:	No
· Special marking (ADR):	Symbol (fish and tree)
· Special marking (IATA):	Symbol (fish and tree)
· 14.6 Special precautions for user	Warning: Miscellaneous dangerous substances and articles.
· Kemler Number:	90
· EMS Number:	F-A,S-F
· Stowage Category	A
· Stowage Code	SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	-
· ADR	
· Limited quantities (LQ)	5 kg
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· Transport category	3
· Tunnel restriction code	-
· IMDG	
· Limited quantities (LQ)	5 kg

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· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· UN "Model Regulation":	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (DIBENZOYL PEROXIDE, 2-ETHYLHEXYL THIOGLYCOLATE), 9, III

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
 - **Directive 2012/18/EU**
 - **Named dangerous substances - ANNEX I** None of the ingredients is listed.
 - **Seveso category E2** Hazardous to the Aquatic Environment
 - **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t
 - **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 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.
 - H241 Heating may cause a fire or explosion.
 - H315 Causes skin irritation.
 - H317 May cause an allergic skin reaction.
 - H319 Causes serious eye irritation.
 - H333 May be harmful if inhaled.
 - H335 May cause respiratory irritation.
 - H400 Very toxic to aquatic life.
 - H410 Very toxic to aquatic life with long lasting effects.
- **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
 - 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

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*Flam. Liq. 2: Flammable liquids – Category 2**Self-react. B: Self-reactive substances and mixtures – Type B**Org. Perox. B: Organic peroxides – Type B**Acute Tox. 5: Acute toxicity – Category 5**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**STOT SE 3: Specific target organ toxicity (single exposure) – Category 3**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 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2***Sources***(EC) 1272/2008: classification, labelling and packaging of substances and mixtures**(EC) 1907/2006: REACH**ADR/RID/ADN - IDMG - IATA: transport of dangerous goods by road, rail, inland waterway, with maritime vessels and for the air transport*** Data compared to the previous version altered.*

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