



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

Printing date 06.08.2020

Version number 4

Revision: 06.08.2020

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

· **1.1 Product identifier**

· Trade name: **Palabond**

· **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** Auxiliary for manufacture of dental prothesis

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Kulzer GmbH

Leipziger Straße 2, 63450 Hanau (Germany)

Tel.: +49 (0)800 4372522

· **Informing department:** E-Mail: msds@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. 2 H225 Highly flammable liquid and vapour.

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H335 May cause respiratory irritation.

· **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 GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labelling:**

methyl methacrylate

methacrylic acid

tetramethylene dimethacrylate

maleic acid

mequinol

· **Hazard statements**

H225 Highly flammable liquid and vapour.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

· **Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not breathe 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.

P337+P313 If eye irritation persists: Get medical advice/attention.

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Additional information:

1 % of the mixture consists of component(s) of unknown toxicity.
Contains 1 % of components with unknown hazards to the aquatic environment.

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: 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	≥75-≤90%
CAS: 79-41-4 EINECS: 201-204-4 Reg.nr.: 01-2119463884-26-XXXX	methacrylic acid Acute Tox. 3, H311 Skin Corr. 1A, H314; Eye Dam. 1, H318 Acute Tox. 4, H302; Acute Tox. 4, H332; STOT SE 3, H335 Specific concentration limit: STOT SE 3; H335: C ≥ 1 %	5%
CAS: 2082-81-7 EINECS: 218-218-1 Reg.nr.: 02-2119849716-25	tetramethylene dimethacrylate Skin Sens. 1B, H317	≥1-≤5%
CAS: 110-16-7 EINECS: 203-742-5 Reg.nr.: 01-2119488705-25-XXXX	maleic acid Eye Dam. 1, H318 Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Irrit. 2, H315; Skin Sens. 1, H317; STOT SE 3, H335	≥0.1-<1%
CAS: 131-57-7 EINECS: 205-031-5	2-Hydroxy-4-methoxy benzophenone Aquatic Acute 1, H400; Aquatic Chronic 2, H411	≥0-<0.25%
CAS: 150-76-5 EINECS: 205-769-8 Reg.nr.: 01-2119541813-40-XXXX	mequinol Acute Tox. 4, H302; Eye Irrit. 2, H319; Skin Sens. 1, H317 Aquatic Chronic 3, H412	≥0.1-<1%
CAS: 63393-96-4	Quaternary ammonium compounds, tri-C8-10-alkylmethyl, chlorides Acute Tox. 3, H301 Repr. 2, H361 Skin Corr. 1C, H314; Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=1)	≥0.025-<0.25%

· **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

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

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- **After skin contact**
Instantly 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. If symptoms persist, consult doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
In case of persistent symptoms consult doctor.
Product based on methacrylates
- **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, sand, extinguishing powder. Do not use water.
 - **For safety reasons unsuitable extinguishing agents** Water.
- **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.
- **5.3 Advice for firefighters**
 - **Protective equipment:** No special measures required.
 - **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.
- **6.2 Environmental precautions:** Prevent material from reaching sewage system, holes and cellars.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (diatomite, universal binders, for small amounts tissues).
Do not flush with water or aqueous cleansing agents
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.
Keep away from heat and direct sunlight.
 - **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
- **7.2 Conditions for safe storage, including any incompatibilities**
 - **Storage**
 - **Requirements to be met by storerooms and containers:** Store in cool location.

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- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 - Store cool (not above 25 °C).
 - Store in cool, dry conditions in well sealed containers.
 - Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

· **8.1 Control parameters**

- **Components with critical values that require monitoring at the workplace:**

80-62-6 methyl methacrylate

OES () Short-term value: 416 mg/m³, 100 ppm
Long-term value: 208 mg/m³, 50 ppm

79-41-4 methacrylic acid

OES () Short-term value: 143 mg/m³, 40 ppm
Long-term value: 72 mg/m³, 20 ppm

· **DNELs**

80-62-6 methyl methacrylate

Dermal	worker industr., l.te., syst.	74.3 mg/Kg/d (human)
Inhalative	worker industr., l.te., syst.	210 mg/m ³ (human)

110-16-7 maleic acid

Dermal	worker industr., acute, syst.	58 mg/Kg/d (nd)
	worker industr., l.te., syst.	3.3 mg/Kg/d (nd)

· **PNECs**

80-62-6 methyl methacrylate

freshwater	0.94 mg/l (aqua)
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110-16-7 maleic acid

freshwater	0.074 mg/l (nd)
STP	3.33 mg/l (nd)

63393-96-4 Quaternary ammonium compounds, tri-C8-10-alkylmethyl, chlorides

marine water	0.02 mg/l (nd)
STP	5.5 mg/l (nd)
sedim., dw, fre.wat.	2.1 mg/Kg (nd)
sedim., dw, mar.wat.	0.21 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:**

- Not necessary with efficient local exhaust. If exposition to vapours is possible, use breathing protective mask (filter A).

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· **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

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

Solvent resistant gloves

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

· **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.

· **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.

· **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Butyl rubber, BR

Nitrile rubber, NBR

· **Eye protection:** Tightly sealed 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:** Colourless

· **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:** 100 °C

· **Flash point:** 10 °C

· **Inflammability (solid, gaseous)** Not applicable.

· **Ignition temperature:** 370.0 °C

· **Decomposition temperature:** Not determined.

· **Self-inflammability:** Product is not selfigniting.

· **Explosive properties:** Product is not explosive. However, formation of explosive air/vapour mixtures is possible.

· **Critical values for explosion:**

· **Lower:** 2.1 Vol %

· **Upper:** 12.5 Vol %

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· Steam pressure at 20 °C:	47 hPa
· Density at 20 °C	0.940 g/cm ³
· 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 at 20 °C:	1 mPas
· kinematic:	Not determined.
· Solvent content:	
· VOC EU	841.2 g/l
· 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:** No further relevant information available.
- **10.6 Hazardous decomposition products:** None
 - **Additional information:**
If stored longer than recommended and/or above recommended temperature, product may polymerize generating heat.

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)

79-41-4 methacrylic acid

Oral	LD50	1,320 mg/kg (rat) (OECD 401)
Dermal	LD50	500-1,000 mg/kg (rab)
Inhalative	LC50/4 h	7.1 mg/l (rat) (OECD 403)

2082-81-7 tetramethylene dimethacrylate

Oral	LD50	10,066 mg/kg (rat) (OECD 401)
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110-16-7 maleic acid

Oral	LD50	708 mg/kg (rat)
Dermal	LD50	1,560 mg/kg (rabbit)

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131-57-7 2-Hydroxy-4-methoxy benzophenone

Oral	LD50	>12,800 mg/kg (rat) (OECD 401)
Dermal	LD50	>16,000 mg/kg (rabbit) (OECD 402)

150-76-5 mequinol

Oral	LD50	1,630 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)

63393-96-4 Quaternary ammonium compounds, tri-C8-10-alkylmethyl, chlorides

Oral	LD50	>200-<2,000 mg/kg (rat) (OECD 401)
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- **Primary irritant effect:**
 - **Skin corrosion/irritation**
Causes severe skin burns and eye damage.
 - **Serious eye damage/irritation**
Causes serious eye damage.
- **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
- **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**
May cause respiratory irritation.
- **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

EC50/48h	69 mg/l (daphnia)
LC50/96h	191 mg/l (fish)

79-41-4 methacrylic acid

EC50/72h	45 mg/l (algae)
EC50/48h	>130 mg/l (daphnia)
LC50/96h	85 mg/l (fish)
NOEC / 21d	53 mg/l (daphnia)
NOEC / 72h	8.2 mg/l (algae)

110-16-7 maleic acid

EC50/72h	74.35 mg/l (algae)
EC50/48h	42.81 mg/l (daphnia)
LC50/96h	5 mg/l (fish)

150-76-5 mequinol

EC50/48h	3 mg/l (daphnia)
LC50/96h	28.5 mg/l (fish)
NOEC / 21d	0.68 mg/l (daphnia)
IC 50/ 72h	171.4 mg/l (bacteria)
ErC50 / 72 h	54.7 mg/l (algae)

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NOEC / 72h 2.96 mg/l (algae)

- **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 undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
- **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 not be disposed of together with household garbage. Do not allow product to reach sewage system.
Disposal must be made according to official regulations.

- **European waste catalogue**

18 01 06* | chemicals consisting of or containing hazardous substances

- **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** 2924
- **14.2 UN proper shipping name**
 - **ADR** 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (METHYL METHACRYLATE MONOMER, STABILIZED, METHACRYLIC ACID, STABILIZED)
 - **IMDG, IATA** FLAMMABLE LIQUID, CORROSIVE, N.O.S. (METHYL METHACRYLATE MONOMER, STABILIZED, METHACRYLIC ACID, STABILIZED)
- **14.3 Transport hazard class(es)**
 - **ADR**

 - **Class** 3 (FC) Flammable liquids.

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· Label	3+8
· IMDG, IATA	
	
· Class	3 Flammable liquids.
· Label	3+8
· 14.4 Packing group · ADR, IMDG, IATA	II
· 14.5 Environmental hazards: · Marine pollutant:	No
· 14.6 Special precautions for user · Kemler Number: · EMS Number:	Warning: Flammable liquids. 338 F-E,S-C
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	-
· UN "Model Regulation":	UN2924, FLAMMABLE LIQUID, CORROSIVE, N.O.S. (METHYL METHACRYLATE MONOMER, STABILIZED, METHACRYLIC ACID, STABILIZED), 3 (8), II

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
 - Directive 2012/18/EU
 - 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
 - REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
- 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.
 - H301 Toxic if swallowed.
 - H302 Harmful if swallowed.
 - H311 Toxic in contact with skin.
 - H312 Harmful in contact with skin.
 - H314 Causes severe skin burns and eye damage.
 - H315 Causes skin irritation.
 - H317 May cause an allergic skin reaction.
 - H318 Causes serious eye damage.
 - H319 Causes serious eye irritation.

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H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H361 Suspected of damaging fertility or the unborn child.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

H411 Toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

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)

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)

VOCV: Lenkungsabgabe auf flüchtigen organischen Verbindungen, Schweiz (Swiss Ordinance on volatile organic compounds)

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

Acute Tox. 4: Acute toxicity - oral – Category 4

Acute Tox. 3: Acute toxicity - dermal – Category 3

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1C: Skin corrosion/irritation – Category 1C

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 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

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

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

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