Safety Data Sheet
acc. to OSHA HCS

Printing date 08/07/2023 Reviewed on 08/07/2023

1 Identification

· **Product identifier**

· **Trade name:** **Palabond**

· **-**

· **Application of the substance / the mixture** Auxiliary for manufacture of dental prothesis

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

· **Manufacturer/Supplier:**
Kulzer GmbH
Leipziger Straße 2, 63450 Hanau (Germany) Tel.: +49 (0)800 4372522

· **Information department:**
Tel. +1 (800) 431-1785 Fax: +1 (800) 522-1545
e-mail: customer.servicehkna@kulzer-dental.com

· **Emergency telephone number:**
Emergency CONTACT (24-Hour-Number)
ID 105860: (domestic) 1 800 535 5053 or international (001) 352 323 3500

*

2 Hazard(s) identification

· **Classification of the substance or mixture**

Flammable Liquids 2	H225 Highly flammable liquid and vapor.
Skin Corrosion 1A	H314 Causes severe skin burns and eye damage.
Eye Damage 1	H318 Causes serious eye damage.
Sensitization - Skin 1	H317 May cause an allergic skin reaction.
Specific Target Organ Toxicity - Single Exposure 3	H335 May cause respiratory irritation.

· **Label elements**

· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**
methyl methacrylate
methacrylic acid
1,4-butandioldimethacrylate

· **Hazard statements**
Highly flammable liquid and vapor.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause respiratory irritation.

· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Do not breathe mist/vapours/spray.
Wear protective gloves / eye protection.
Wear protective clothing.
If on skin: Wash with plenty of soap and water.
If eye irritation persists: Get medical advice/attention.

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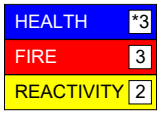
· **Classification system**
· **NFPA ratings for USA (scale 0-4)**

Health = 2
Fire = 3
Reactivity = 2

· **HMIS-Ratings (Scale 0-4)**



Health = *3
Fire = 3
Reactivity = 2

· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Composition based on methacrylates

· **Dangerous components:**		
80-62-6	methyl methacrylate Flammable Liquids 2, H225 Skin Irritation 2, H315; Sensitization - Skin 1, H317; Specific Target Organ Toxicity - Single Exposure 3, H335	75-90%
79-41-4	methacrylic acid Acute Toxicity - Dermal 3, H311 Skin Corrosion 1A, H314; Eye Damage 1, H318 Acute Toxicity - Oral 4, H302; Acute Toxicity - Inhalation 4, H332; Specific Target Organ Toxicity - Single Exposure 3, H335 Specific concentration limit: STOT SE 3; H335: C ≥ 1 %	5%
2082-81-7	1,4-butandioldimethacrylate Sensitization - Skin 1B, H317	≥1-≤5%

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **After inhalation** Supply fresh air; consult doctor in case of complaints.
· **After skin contact**
Immediately 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 a doctor.
· **After swallowing**
Rinse out mouth and then drink plenty of water.
If symptoms persist consult doctor.
Composition based on methacrylates
· **Information for doctor**
· **Most important symptoms and effects, both acute and delayed**
No further relevant information available.

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

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents** CO2, sand, extinguishing powder. Do not use water.
· **For safety reasons unsuitable extinguishing agents** Water.
· **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.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.
· **Additional information** -

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Avoid contact with eyes and skin.
· **Environmental precautions:** Prevent seepage into sewage system, workpits and cellars.
· **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 receptacles.
· **Reference to other sections**
See Section 13 for disposal information.
See Section 8 for information on personal protection equipment.
-

7 Handling and storage

· **Handling**
· **Precautions for safe handling**
Keep receptacles 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.

· **Conditions for safe storage, including any incompatibilities**
· **Storage**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep cool, if possible (not above 25 °C).
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
· **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

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

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

80-62-6 methyl methacrylate	
PEL	Long-term value: 410 mg/m³, 100 ppm
REL	Long-term value: 410 mg/m³, 100 ppm
TLV	Short-term value: 100 ppm Long-term value: 50 ppm DSEN, A4
79-41-4 methacrylic acid	
REL	Long-term value: 70 mg/m³, 20 ppm Skin
TLV	Long-term value: 20 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment**

· **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of 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).

· **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

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· **Eye protection:** Tightly sealed goggles.
· **Body protection:** Light weight protective clothing

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
· **Form:**	Fluid
· **Color:**	Colorless
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Mixture is non-soluble (in water).
· **Change in condition**	
· **Melting point/Melting range:**	undetermined
· **Boiling point/Boiling range:**	100 °C (212 °F)
· **Flash point:**	10 °C (50 °F)
· **Flammability (solid, gaseous)**	Not applicable.
· **Auto igniting:**	370.0 °C (698 °F)
· **Decomposition temperature:**	Not determined.
· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
· **Lower:**	2.1 Vol %
· **Upper:**	12.5 Vol %
· **Vapor pressure at 20 °C (68 °F):**	47 hPa (35.3 mm Hg)
· **Density at 20 °C (68 °F):**	0.940 g/cm³ (7.8443 lbs/gal)
· **Relative density**	Not determined.
· **Vapor 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 (68 °F):**	1 mPas
· **kinematic:**	Not determined.
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Possibility of hazardous reactions** No dangerous reactions known
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.

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· **Hazardous decomposition products:** none
· **Additional information:**
Product might polymerize after considerable exceeding of recommended storage time or temperature.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· 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 (guinea pig) (OECD 402)
Inhalative	LC50/4 h	29.8 mg/l (rat)
79-41-4 methacrylic acid		
Oral	LD50	1,320 mg/kg (ATE) 1,320 mg/kg (rat) (OECD 401)
Dermal	LD50	500 mg/kg (ATE) 500-1,000 mg/kg (rabbit)
Inhalative	LC50/4 h	11 mg/l (ATE) 7.1 mg/l (rat) (OECD 403)
2082-81-7 1,4-butandioldimethacrylate		
Oral	LD50	10,066 mg/kg (rat) (OECD 401)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** Sensitization possible through skin contact.
· **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
80-62-6	methyl methacrylate	3

· NTP (National Toxicology Program)
None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

· **Reproductive toxicity** Based on available data, the classification criteria are not met.

12 Ecological information

· **Toxicity**

· Aquatic toxicity:	
80-62-6 methyl methacrylate	
EC50/21d	49 mg/L (daphnia) (OECD 211)

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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)
79-41-4 methacrylic acid	
EC50/48h	>130 mg/l (daphnia) (EPA OTS 797.1300)
LC50/96h	85 mg/l (fish) (EPA OTS 797.1400)
NOEC / 21d	53 mg/l (daphnia)
ErC50 / 72 h	45 mg/l (algae) (OECD 201)
NOEC / 72h	8.2 mg/l (algae) (OECD 201)
NOEC / 96h	12 mg/l (fish) (EPA OTS 797.1400)
NOEC / 48h	130 mg/l (daphnia) (EPA OTS 797.1300)
NOEC/ 35d	10 mg/L (fish) (OECD 210)
LC50/ 35d	42 mg/L (fish) (OECD 210)
2082-81-7 1,4-butandioldimethacrylate	
EC50/21d	14.1 mg/L (daphnia) (OECD 211)
EC50/48h	32.5 mg/l (fish)
NOEC / 21d	5.09 mg/l (daphnia) (OECD 211)
ErC50 / 72 h	9.79 mg/l (algae) (OECD 201)
NOEC / 72h	2.11 mg/l (algae) (OECD 201)
NOEC / 48h	25 mg/l (fish)
ErC10/72h	4.35 mg/L (algae) (OECD 201)

· **Persistence and degradability**

80-62-6 methyl methacrylate	
biodegradability	94 % /14d (not defined) (OECD 301C)
79-41-4 methacrylic acid	
biodegradability	86 % /28d (not defined) (OECD 301D)
2082-81-7 1,4-butandioldimethacrylate	
biodegradability	84 % /28d (not defined) (OECD 310)

· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **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.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

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· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **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.

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN2924
· **UN proper shipping name**	
· **DOT**	Flammable liquids, corrosive, n.o.s. (Methyl methacrylate monomer, stabilized, Methacrylic acid, stabilized)
· **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)
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3 Flammable liquids
· **Label**	3
· **ADR**	

· **Class**	3 (FC) Flammable liquids
· **Label**	3+8

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· **IMDG**

· **Class** 3 Flammable liquids
· **Label** 3/8

· **IATA**

· **Class** 3 Flammable liquids
· **Label** 3 (8)

· **Packing group**
· **DOT, ADR, IMDG, IATA** II

· **Environmental hazards:**
· **Marine pollutant:** No

· **Special precautions for user** Warning: Flammable liquids
· **Hazard identification number (Kemler code):** 338
· **EMS Number:** F-E,S-C
· **Segregation groups** Acids
· **Stowage Category** B
· **Stowage Code** SW2 Clear of living quarters.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:** -

· **ADR**
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **IMDG**
· **Limited quantities (LQ)** 1L
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (METHYL METHACRYLATE MONOMER, STABILIZED, METHACRYLIC ACID, STABILIZED), 3 (8), II

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.

· **Sara**

· **SARA Section 355 (extremely hazardous substances)**

None of the ingredients is listed.

· **SARA Section 313 (specific toxic chemical listings)**

80-62-6	methyl methacrylate

· **Proposition 65**

· **Prop 65 - Chemicals known to cause cancer**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

80-62-6	methyl methacrylate	E;NL

· **TLV (Threshold Limit Value)**

80-62-6	methyl methacrylate	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

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

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 vapor.
H302 Harmful if swallowed.
H311 Toxic 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.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

· **Date of preparation / last revision** 08/07/2023

· **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
DOT: US Department of Transportation
IATA: International Air Transport Association
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)

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NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flammable Liquids 2: Flammable liquids – Category 2
Acute Toxicity - Oral 4: Acute toxicity – Category 4
Acute Toxicity - Dermal 3: Acute toxicity – Category 3
Skin Corrosion 1A: Skin corrosion/irritation – Category 1A
Skin Irritation 2: Skin corrosion/irritation – Category 2
Eye Damage 1: Serious eye damage/eye irritation – Category 1
Sensitization - Skin 1: Skin sensitisation – Category 1
Sensitization - Skin 1B: Skin sensitisation – Category 1B
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3
· **** Data compared to the previous version altered.***