



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

Printing date 10.08.2021

Version number 4

Revision: 10.08.2021

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

· **1.1 Product identifier**

· Trade name: **iBOND Total Etch**

· **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** Dental bonding material

· **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](mailto: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**

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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

STOT SE 3 H335 May cause respiratory irritation.

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**



GHS07 GHS08 GHS09

· **Signal word** Danger

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

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl  
bismethacrylate  
glutaral

2-hydroxyethyl methacrylate

4-methacryloxyethyltrimellitic acid anhydride

· **Hazard statements**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P261 Avoid breathing mist/vapours/spray.

P273 Avoid release to the environment.

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

P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

**Additional information:**

Contains isocyanates. 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: 64-17-5 EINECS: 200-578-6 Reg.nr.: 2119457610-43-xxxx	ethanol Flam. Liq. 2, H225 Eye Irrit. 2, H319 Specific concentration limit: Eye Irrit. 2; H319: C ≥ 50 %	≥25-<50%
CAS: 72869-86-4 EINECS: 276-957-5 Reg.nr.: 01-2120751202-68-xxxx	7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate Aquatic Chronic 2, H411 Skin Sens. 1B, H317	≥25-≤50%
CAS: 868-77-9 EINECS: 212-782-2	2-hydroxyethyl methacrylate Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	≥10-≤25%
	Poly(methacrylic-oligo-acrylic acid) Eye Irrit. 2, H319	0-5%
CAS: 70293-55-9	4-methacryloxyethyltrimellitic acid anhydride Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	≥1-<5%
CAS: 111-30-8 EINECS: 203-856-5	glutaral Acute Tox. 3, H301; Acute Tox. 2, H330 Resp. Sens. 1, H334 Skin Corr. 1B, H314 Aquatic Acute 1, H400; Aquatic Chronic 2, H411 Skin Sens. 1A, H317; STOT SE 3, H335 Specific concentration limit: STOT SE 3; H335: C ≥ 0.5 %	≥2.5-<5%

· **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.

· **After skin contact** Instantly wash with water and soap and rinse thoroughly.

· **After eye contact**

Rinse opened eye for several minutes under running water. Then consult doctor.

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- **After swallowing**  
*In case of persistent symptoms consult doctor.  
Rinse out mouth and then drink plenty of water.  
Instantly call for doctor.*
- **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**  
*CO<sub>2</sub>, 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.*
- **5.3 Advice for firefighters**
  - **Protective equipment:** *Put on 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.*
- **6.2 Environmental precautions:**  
*Do not allow to enter the ground/soil.  
No special measures required.*
- **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.*
- 

### **SECTION 7: Handling and storage**

- **7.1 Precautions for safe handling**  
*Keep containers tightly sealed.  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.*
  - **Information about protection against explosions and fires:**  
*Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.*
- **7.2 Conditions for safe storage, including any incompatibilities**
  - **Storage**
    - **Requirements to be met by storerooms and containers:** *No special requirements.*
    - **Information about storage in one common storage facility:** *Not required.*
    - **Further information about storage conditions:** *Store cool (not above 25 °C).*

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· **7.3 Specific end use(s)** No further relevant information available.

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**SECTION 8: Exposure controls/personal protection**

· **8.1 Control parameters**

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

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

**64-17-5 ethanol**

WEL Long-term value: 1920 mg/m<sup>3</sup>, 1000 ppm

**111-30-8 glutaral**

WEL Short-term value: 0.2 mg/m<sup>3</sup>, 0.05 ppm  
Long-term value: 0.2 mg/m<sup>3</sup>, 0.05 ppm

· **DNELs**

**64-17-5 ethanol**

Oral	ge.pop., l.te, syst.	87 mg/Kg (nd)
Dermal	worker industr., l.te., syst.	343 mg/Kg/d (nd)
	ge.pop., l.te, syst.	206 mg/Kg/d (nd)
Inhalative	worker industr., l.te., syst.	950 mg/m <sup>3</sup> (nd)
	ge.pop., l.te, syst.	114 mg/m <sup>3</sup> (nd)

**72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate**

Oral	ge.pop., l.te, syst.	0.3 mg/Kg (nd)
Dermal	worker industr., l.te., syst.	1.3 mg/Kg/d (nd)
	ge.pop., l.te, syst.	0.7 mg/Kg/d (nd)
Inhalative	worker industr., l.te., syst.	3.3 mg/m <sup>3</sup> (nd)
	ge.pop., l.te, syst.	0.6 mg/m <sup>3</sup> (nd)

**868-77-9 2-hydroxyethyl methacrylate**

Dermal	worker industr., l.te., syst.	1.3 mg/Kg/d (nd)
Inhalative	worker industr., l.te., syst.	4.9 mg/m <sup>3</sup> (nd)

· **PNECs**

**64-17-5 ethanol**

freshwater	0.96 mg/l (nd)
marine water	0.79 mg/l (nd)
STP	580 mg/l (nd)
sedim., dw, fre.wat.	3.6 mg/Kg (nd)
sedim., dw, mar.wat.	2.9 mg/Kg (nd)
soil,dw	0.63 mg/Kg (nd)

**72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate**

freshwater	0.01 mg/l (nd)
marine water	0.001 mg/l (nd)
STP	3.61 mg/l (nd)
sedim., dw, fre.wat.	4.56 mg/Kg (nd)
sedim., dw, mar.wat.	0.46 mg/Kg (nd)
soil,dw	0.91 mg/Kg (nd)

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**868-77-9 2-hydroxyethyl methacrylate**

freshwater	0.482 mg/l (nd)
STP	10 mg/l (nd)
sedim., dw, fre.wat.	3.79 mg/Kg (nd)
soil,dw	0.476 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:** Breathing protection recommended.

· **Protection of hands:**

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:** Yellowish
- **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

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· <b>Flash point:</b>	Not applicable
· <b>Inflammability (solid, gaseous)</b>	Not applicable.
· <b>Decomposition temperature:</b>	Not determined.
· <b>Self-inflammability:</b>	Product is not selfigniting.
· <b>Explosive properties:</b>	Product is not explosive. However, formation of explosive air/vapour mixtures is possible.
· <b>Critical values for explosion:</b>	
· Lower:	Not determined.
· Upper:	Not determined.
· <b>Steam pressure:</b>	Not determined.
· <b>Density at 20 °C</b>	1 g/cm <sup>3</sup>
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· <b>Solubility in / Miscibility with</b>	
· Water:	Not miscible or difficult to mix
· <b>Partition coefficient: n-octanol/water:</b>	Not determined.
· <b>Viscosity:</b>	
· dynamic:	Not determined.
· kinematic:	Not determined.
· <b>9.2 Other information</b>	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:** -

### 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:**

#### 64-17-5 ethanol

Oral LD50 10470 mg/kg (rat) (OECD 401)

#### 72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate

Oral LD50 >5000 mg/kg (rat) (OECD 401)

Dermal LD50 >2000 mg/kg (rat) (OECD 402)

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**868-77-9 2-hydroxyethyl methacrylate**

Oral LD50 5564 mg/kg (rat)

Dermal LD50 >5000 mg/kg (can)

**Poly(methacrylic-oligo-acrylic acid)**

Oral LD50 >5000 mg/kg (rat)

**70293-55-9 4-methacryloxyethyltrimellitic acid anhydride**

Oral LD50 >2000 mg/kg (mouse)

Dermal LD50 >2000 mg/kg (mouse)

**111-30-8 glutaral**

Oral LD50 77 mg/kg (rat)

- **Primary irritant effect:**
  - **Skin corrosion/irritation**  
Causes skin irritation.
  - **Serious eye damage/irritation**  
Causes serious eye irritation.
- **Respiratory or skin sensitisation**  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
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.
    - **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:**

**64-17-5 ethanol**

LC50/96h 14200 mg/l (fish)

ErC50 / 72 h 275 mg/l (algae) (OECD 201)

EC50/96h 129000 mg/L (fish)

LC50/48h 5012 mg/L (daphnia)

ErC10/72h 11.5 mg/L (algae) (OECD 201)

NOEC 5d 250 mg/L (fish) (OECD 212)

NOEC 10d 9.6 mg/L (daphnia)

**72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate**

EC50/48h >1.2 mg/l (daphnia) (OECD 202)

LC50/96h 10.1 mg/l (fish) (OECD 203)

ErC50 / 72 h >0.68 mg/l (algae) (OECD 201)

NOEC / 72h 0.21 mg/l (algae) (OECD 201)

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**868-77-9 2-hydroxyethyl methacrylate**

EC50/48h	380 mg/l (daphnia)
LC50/96h	>100 mg/l (fish)
EC50	>3000 mg/l (bacteria)
NOEC / 21d	24.1 mg/l (daphnia)
ErC50 / 72 h	836 mg/l (algae)
NOEC / 72h	400 mg/l (algae) (OECD 201)

**12.2 Persistence and degradability**

**64-17-5 ethanol**

Biodegradation 84 % /20d (nd)

**72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate**

Biodegradation 22 % /28d (nd) (OECD 301B; ISO/ 9439/ EEC 92/69/V, C.4-C)

- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
  - **Additional ecological information:**
    - **General notes:** Avoid transfer into the environment.
- **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.
  - **Uncleaned packagings:**
    - **Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

- **14.1 UN-Number**
  - **ADR, IMDG, IATA** UN1170
- **14.2 UN proper shipping name**
  - **ADR** 1170 ETHANOL SOLUTION
  - **IMDG** ETHANOL (ETHYL ALCOHOL)
  - **IATA** Ethanol

**14.3 Transport hazard class(es)**

- **ADR**



· **Class**

3 (F1) Flammable liquids.

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· Label	3
· <b>IMDG</b>	
 	
· Class	3 Flammable liquids.
· Label	3
· <b>IATA</b>	
	
· Class	3 Flammable liquids.
· Label	3
· <b>14.4 Packing group</b> · ADR, IMDG, IATA	III
· <b>14.5 Environmental hazards:</b>	
· Marine pollutant:	No Symbol (fish and tree)
· Special marking (ADR):	Symbol (fish and tree)
· <b>14.6 Special precautions for user</b>	Warning: Flammable liquids.
· Kemler Number:	30
· EMS Number:	F-E,S-D
· Stowage Category	A
· <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	-
· <b>ADR</b>	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category	3
· Tunnel restriction code	D/E
· <b>IMDG</b>	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN1170, ETHANOL (ETHYL ALCOHOL), 3, III

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**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.
- **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.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H330 Fatal if inhaled.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 May cause respiratory irritation.  
H400 Very toxic to aquatic life.  
H411 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  
Flam. Liq. 2: Flammable liquids – Category 2  
Acute Tox. 3: Acute toxicity – Category 3  
Acute Tox. 2: Acute toxicity – Category 2  
Skin Corr. 1B: Skin corrosion/irritation – Category 1B  
Skin Irrit. 2: Skin corrosion/irritation – Category 2  
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2  
Resp. Sens. 1: Respiratory sensitisation – Category 1  
Skin Sens. 1: Skin sensitisation – Category 1  
Skin Sens. 1A: Skin sensitisation – Category 1A  
Skin Sens. 1B: Skin sensitisation – Category 1B  
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 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
- **\* Data compared to the previous version altered.**