

SAFETY DATA SHEETS

This SDS packet was issued with item:

077028988

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

077028962 077028970

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/09/2016

Reviewed on 09/09/2016

1 Identification

- Product identifier
- Trade name: **Futurabond U Liquid I**
- Application of the substance / the mixture *Bonding*
- Details of the supplier of the safety data sheet
- Manufacturer/Supplier:
I O C O GmbH
Anton-Flettner-Str. 1-3
D-27472 Cuxhaven
- Information department: Scientific department tel. +49 (0)4721-719-0
- Emergency telephone number: Scientific department tel. +49 (0)4721-719-0

2 Hazard(s) identification

Health effects are based on the unmixed uncured material.
Under FDA regulations this product is classified as a medical device.
Medical devices are exempt from the labelling provisions of GHS according to the Hazard Communication Standard (HCS).

- Classification of the substance or mixture



Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

Eye Irrit. 2B H320 Causes eye irritation.

- Label elements
- Hazard pictograms GHS07
- Signal word *Warning*
- Hazard statements

Causes skin and eye irritation.
May cause an allergic skin reaction.
May cause respiratory irritation.

- Precautionary statements

Wear protective gloves protective clothing eye protection face protection.
Call a doctor if you feel unwell.
If skin irritation occurs: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water.
Store locked up.
Dispose of contents container in accordance with local regional national international regulations.

- Other hazards *Use only for intended scope of application*
- Results of PBT and vPvB assessment
- PBT: Not applicable
- vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: *Mixtures*
- Description: *Mixture of the substances listed below with nonhazardous additions.*
- Dangerous components:

1565-94-2	BIS GMA	25-50%
	Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317	
868-77-9	2-hydroxyethyl methacrylate	25-50%
	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	

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Trade name: **Futurabond U Liquid 1**

		(Contd. of page 1)
6606-59-3	1,6-hexanediylbismethacrylate Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	10-25%
	Acidic adhesive monomer Skin Corr. 1B, H314; Eye Dam. 1, H318	5-10%
	Catalyst Acute Tox. 3, H301 Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319	≤ 2.5%

4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Seek medical treatment in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
Most important symptoms and effects, both acute and delayed No further relevant information available.
- **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, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers, surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **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 disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** For dental use only.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** See storage instructions on package
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

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Printing date 09/09/2016

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Trade name: Futurabond U Liquid I

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

8 Exposure controls/personal protection

· *Additional information about design of technical systems:* No further data; see item 7.· *Control parameters*· *Components with limit 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.

· *Additional information:* The lists that were valid during the creation were used as basis.· *Exposure controls*· *Personal protective equipment:*· *General protective and hygienic measures:*

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 required.· *Protection of hands:*

Protective gloves

· *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.

· *Eye protection:* Safety glasses

9 Physical and chemical properties

· *Information on basic physical and chemical properties*· *General Information*· *Appearance:*

Form:	Fluid
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Color:	Colorless
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Odor:	Characteristic
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Odor threshold:	Not determined.
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pH-value at 20 °C (68 °F):	2,3
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· *Change in condition*

Melting point/Melting range:	Undetermined.
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Boiling point/Boiling range:	Undetermined.
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Flash point:	Not applicable.
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Flammability (solid, gaseous):	Not applicable.
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Decomposition temperature:	Not determined.
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Auto igniting:	Product is not selfigniting.
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Danger of explosion:	Product does not present an explosion hazard.
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Density at 20 °C (68 °F):	1.1 g cm ⁻³ (9.18 lbs gal)
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Relative density	Not determined.
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Vapor density	Not determined.
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Evaporation rate	Not determined.
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Trade name: Futurabond U Liquid I

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- **Solubility in / Miscibility with Water:** Not miscible or difficult to mix.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - **Dynamic:** Not determined.
 - **Kinematic:** Not determined.
- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

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

· LD/LC50 values that are relevant for classification:		
Acidic adhesive monomer		
Oral	LD50	> 2000 mg/kg (rat)
- **Primary irritant effect:**
 - **on the skin:** Testing according to ISO 10993-1 10993-10 showed no skin irritation for this product when fully cured. 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 internally approved calculation methods for preparations: Irritant
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
128-37-0	2,6-di-tert-butyl-p-cresol	3
- **NTP (National Toxicology Program)**

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

None of the ingredients is listed.		
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12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.

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Trade name: Futurabond U Liquid I

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- **Mobility in soil** No further relevant information available.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|-----------------|
| · UN-Number | - |
| · UN proper shipping name | - |
| · Transport hazard class(es) | - |
| · Packing group | - |
| · Environmental hazards: | Not applicable. |
| · Marine pollutant: | No |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not applicable. |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

- **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

- **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

- **Proposition 65**

- **Chemicals known to cause cancer:**

None of the ingredients are listed.

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

None of the ingredients are listed

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

None of the ingredients are listed

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

None of the ingredients are listed

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Trade name: Futurabond U Liquid I

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Carcinogenicity categories

EPA (Environmental Protection Agency)

None of the ingredients are listed

TLV (Threshold Limit Value established by ACGIH)

128-37-0 | 2,6-di-tert-butyl-p-cresol

A4

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

None of the ingredients are listed

GHS label elements

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

Hazard pictograms GHS07

Signal word Warning

Hazard statements

Causes skin and eye irritation.

May cause an allergic skin reaction.

May cause respiratory irritation.

Precautionary statements

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

Call a doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

IF ON SKIN: Wash with plenty of soap and water.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

16 Other information

The information contained herein is based on our present knowledge and is believed to be correct at the date issued. The information is subject to change without notice. However, all information, statements, recommendations or suggestions shall not constitute any guarantee, representation or warranty, expressed or implied.

Final determination whether the product is fit and suitable for a particular purpose and the user's method of use or application is the sole responsibility of the user.

Department issuing SDS: Scientific department

Contact: Tel.: +49 (0)4721-719-0

Date of preparation / last revision 09/09/2016 / 17

Abbreviations and acronyms:

ACGIH: American Conference of Governmental Industrial Hygienists

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)

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

Acute Tox. 3: Acute toxicity Category 3

Acute Tox. 4: Acute toxicity Category 4

Skin Corr. 1B: Skin corrosion/irritation Category 1B

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

Eye Irrit. 2A: Serious eye damage/eye irritation Category 2A

Eye Irrit. 2B: Serious eye damage/eye irritation Category 2B

Skin Sens. 1: Skin sensitisation Category 1

STOT SE 3: Specific target organ toxicity (single exposure) Category 3

* Data compared to the previous version altered.

US

Printing date 27.02.2013

Version number 7

Revision: 27.02.2013

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

- Product identifier
- Trade name: **Futurabond U Liquid 2**
- Relevant identified uses of the substance or mixture and uses advised against Non-dental use.
- Application of the substance / the preparation Bonding
- Details of the supplier of the safety data sheet
- Manufacturer/Supplier:
VOCO GmbH
Anton-Flettner-Str. 1-3
D-27472 Cuxhaven
- Further information obtainable from: Scientific department tel. +49 (0)4721-719-0
- Emergency telephone number: Poison Control Center Mainz +49 (0)6131-19240

2 Hazards identification

- Classification of the substance or mixture
- Classification according to Directive 67/548/EEC or Directive 1999/45/EC
R10: Flammable.
- Information concerning particular hazards for human and environment:
The product does not have to be labelled due to the calculation procedure of the regulation 1272/2008/EC in the latest valid version.
- Classification system:
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- Labelling according to EU guidelines:
As a medical device the product is not subject to labelling regulations under 1272/2008/EC.
- Safety phrases:
7 Keep container tightly closed.
43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.
- Other hazards Use only for intended scope of application

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:			
CAS: 64-17-5	ethanol	F R11	50-100%
EINECS: 200-578-6			
	Initiator	Xn R22	2,5-5%
	Catalyst	Xn R22; Xi R41	≤ 2,5%

4 First aid measures

- Description of first aid measures
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Generally the product does not irritate the skin.
- After eye contact: Rinse opened eye for several minutes under running water.
- After swallowing: If symptoms persist consult doctor.

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Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 27.02.2013

Version number 7

Revision: 27.02.2013

Trade name: Futurabond U Liquid 2

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5 Firefighting measures

- *Extinguishing media*
- *Suitable extinguishing agents: CO₂, sand, extinguishing powder. Do not use water.*
- *For safety reasons unsuitable extinguishing agents: Water with full jet*
- *Protective equipment: No special measures required.*

6 Accidental release measures

- *Personal precautions, protective equipment and emergency procedures Not required.*
- *Environmental precautions: Do not allow to enter sewers/ surface or ground water.*
- *Methods and material for containment and cleaning up:*
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Do not flush with water or aqueous cleansing agents
- *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 disposal information.

7 Handling and storage

- *Handling:*
- *Precautions for safe handling*
No special precautions are necessary if used correctly.
For dental use only.
- *Information about fire - and explosion protection: Keep ignition sources away - Do not smoke.*
- *Conditions for safe storage, including any incompatibilities*
- *Storage:*
- *Requirements to be met by storerooms and receptacles: See storage instructions on package*
- *Information about storage in one common storage facility: Not required.*
- *Further information about storage conditions: Keep container tightly sealed.*

8 Exposure controls/personal protection

- *Additional information about design of technical facilities: No further data; see item 7.*
- *Control parameters*
- *Ingredients with limit 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.
- *Additional information: The lists valid during the making were used as basis.*
- *Exposure controls*
- *Personal protective equipment:*
- *General protective and hygienic measures: Wash hands before breaks and at the end of work.*
- *Respiratory protection: Not required.*
- *Protection of hands: Not required.*
- *Material of gloves Not applicable.*
- *Penetration time of glove material Not applicable.*
- *Eye protection: Safety glasses*

GB

(Contd. on page 3)

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

Printing date 27.02.2013

Version number 7

Revision: 27.02.2013

Trade name: Futurabond U Liquid 2

(Contd. of page 2)

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Fluid
Colour:	Colourless
Odour:	Characteristic

· pH-value at 20 °C: 7

· Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

· Flash point: 23 °C

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 425 °C

· Self-igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

· Density at 20 °C: 0.9 g/cm³

· Solubility in / Miscibility with water:

Not miscible or difficult to mix.

· Other information: No further relevant information available.

10 Stability and reactivity

· Reactivity

· Chemical stability

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions: No dangerous reactions known.

· Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· Primary irritant effect:

· on the skin: No irritant effect.

· on the eye: No irritating effect.

· Sensitization: No sensitizing effects known.

12 Ecological information

· Toxicity

· Aquatic toxicity: No further relevant information available.

· Additional ecological information:

· General notes:

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

GB

(Contd. on page 4)

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

Printing date 27.02.2013

Version number 7

Revision: 27.02.2013

Trade name: Futurabond U Liquid 2

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13 Disposal considerations

- Waste treatment methods
- Recommendation
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packaging:
- Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
- ADR, IMDG, IATA UN1170
- UN proper shipping name -
- ADR 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
- IMDG ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
- IATA ETHANOL SOLUTION
- Transport hazard class(es) -
- ADR, IMDG, IATA
- 
- Class 3 Flammable liquids.
- Label 3
- ADR, IMDG, IATA II
- Marine pollutant: No
- Danger code (Kemler): 33
- EMS Number: F-E,S-E
- ADR
- Limited quantities (LQ) 1L
- Transport category 2
- Tunnel restriction code D/E

15 Regulatory information**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing MSDS: Scientific department
- Contact: Tel.: +49 (0)4721-719-0

GB

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/09/2016

Reviewed on 09/09/2016

1 Identification

- **Product identifier**
- **Trade name:** *Futurabond U Liquid 2*
- **Application of the substance / the mixture** Bonding
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
VOCO GmbH
Anton-Flettner-Str. 1-3
D-27472 Cuxhaven
- **Information department:** Scientific department tel. +49 (0)4721-719-0
- **Emergency telephone number:** Scientific department tel. +49 (0)4721-719-0

2 Hazard(s) identification

Health effects are based on the unmixed/uncured material.

Under FDA regulations this product is classified as a medical device.

Medical devices are exempt from the labelling provisions of GHS according to the Hazard Communication Standard (HCS).

- **Classification of the substance or mixture**



Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**
- **Hazard pictograms** GHS02, GHS07
- **Signal word** Warning
- **Hazard statements**
Flammable liquid and vapor.
Causes serious eye irritation.
- **Precautionary statements**
Wear protective gloves/protective clothing/eye protection/face protection.
Keep container tightly closed.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
In case of fire: Use for extinction: CO₂, sand, extinguishing powder.
Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Other hazards** Use only for intended scope of application
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.

• Dangerous components:

64-17-5	ethanol	Flam. Liq. 2, H225	50-100%
	Initiator	Acute Tox. 3, H301	2.5-5%

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acc. to OSHA HCS

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Reviewed on 09/09/2016

Trade name: Futurabond U Liquid 2

(Contd. of page 1)

Catalyst	Eye Dam. 1, H318 Acute Tox. 4, H302	1-2.5%
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4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **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 with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Do not flush with water or aqueous cleansing agents
- **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 disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** For dental use only.
- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** See storage instructions on package
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

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Safety Data Sheet

acc. to OSHA HCS

Printing date 09/09/2016

Reviewed on 09/09/2016

Trade name: Futurabond U Liquid 2

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- **Control parameters**
- **Components with limit 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.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **Protection of hands:** Not required.
- **Material of gloves:** Not required.
- **Eye protection:** Safety glasses

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 at 20 °C (68 °F):** 7
- **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
- **Flash point:** 23 °C (73 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Density at 20 °C (68 °F):** 0.9 g/cm³ (7.511 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.
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- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**

Dynamic:	Not determined.
Kinematic:	Not determined.
- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.

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acc. to OSHA HCS

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Trade name: Futurabond U Liquid 2

(Contd. of page 3)

- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:**
Testing according to ISO 10993-1/10993-10 showed no skin irritation for this product when fully cured
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**
The component 64-17-5 Ethanol is listed by IARC as Group 1 but in alcoholic beverages consumption only.
This product is not an alcoholic beverage.
- None of the ingredients is listed
- **NTP (National Toxicology Program)**
- None of the ingredients is listed.
- **OSHA-Ca (Occupational Safety & Health Administration)**
- None of the ingredients is listed.
- **Additional carcinogenic information:**
The component 64-17-5 Ethanol is listed by IARC as Group 1 but in alcoholic beverages consumption only.
This product is not an alcoholic beverage.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **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.

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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|---|
| · UN-Number | UN1170 |
| · DOT, ADR, IMDG, IATA | |
| · UN proper shipping name | - |
| · DOT | Ethanol solutions |
| · ADR | 1170 Ethanol solutions |
| · IMDG | ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) |
| · IATA | ETHANOL SOLUTION |
| · Transport hazard class(es) | - |
| · DOT | |
|  | |
| · Class | 3 Flammable liquids |
| · Label | 3 |
| · ADR, IMDG, IATA | |
|  | |
| · Class | 3 Flammable liquids |
| · Label | 3 |
| · Packing group | - |
| · DOT, ADR, IMDG, IATA | II |
| · Environmental hazards: | Not applicable. |
| · Marine pollutant: | No |
| · Special precautions for user | Not applicable.
Warning: Flammable liquids |
| · Danger code (Kemler): | 33 |
| · EMS Number: | F-E, <u>S-E</u> |
| · Stowage Category | A |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation": | UN 1170 ETHANOL SOLUTIONS, 3, II |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· Section 355 (extremely hazardous substances):

None of the ingredients are listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients are listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

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- **Proposition 65**

- **Chemicals known to cause cancer:**

- None of the ingredients are listed.

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

- None of the ingredients are listed

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

- None of the ingredients are listed

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

- None of the ingredients are listed

- **Carcinogenicity categories**

- **EPA (Environmental Protection Agency)**

- None of the ingredients are listed

- **TLV (Threshold Limit Value established by ACGIH)**

- Contact VOCO for more information.

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

- None of the ingredients are listed

- **GHS label elements**

- The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms** GHS02, GHS07

- **Signal word** Warning

- **Hazard statements**

- Flammable liquid and vapor.

- Causes serious eye irritation.

- **Precautionary statements**

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

- Keep container tightly closed.

- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

- Continue rinsing.

- In case of fire: Use for extinction: CO₂, sand, extinguishing powder.

- Dispose of contents/container in accordance with local/regional/national/international regulations.

16 Other information

The information contained herein is based on our present knowledge and is believed to be correct at the date issued. The information is subject to change without notice. However, all information, statements, recommendations or suggestions shall not constitute any guarantee, representation or warranty, expressed or implied.

Final determination whether the product is fit and suitable for a particular purpose and the user's method of use or application is the sole responsibility of the user.

- **Department issuing SDS:** Scientific department

- **Contact:** Tel.: +49 (0)4721-719-0

- **Date of preparation / last revision** 09/09/2016 / 13

- **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

- DOT: US Department of Transportation

- IATA: International Air Transport Association

- ACGIH: American Conference of Governmental Industrial Hygienists

- 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)

- 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

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*PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Flam. Liq. 2: Flammable liquids – Category 2**Flam. Liq. 3: Flammable liquids – Category 3**Acute Tox. 3: Acute toxicity – Category 3**Acute Tox. 4: Acute toxicity – Category 4**Eye Dam. 1: Serious eye damage/eye irritation – Category 1**Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A***· * Data compared to the previous version altered.**

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Safety data sheet

according to 1907/2006/EC, Article 31

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Revision: 09.09.2016

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

- **1.1 Product identifier**
- **Trade name: Futurabond U Liquid 2**
- **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** Bonding
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
VOCO GmbH
Anton-Flettner-Str. 1-3
D-27472 Cuxhaven
- **Further information obtainable from:** Scientific department tel. +49 (0)4721-719-0
- **1.4 Emergency telephone number:** Poison Control Center Mainz +49 (0)6131-19240

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
Flam. Liq. 3 H226 Flammable liquid and vapour.
- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
As a medical device the product is not subject to labelling regulations under 1272/2008/EC.
- **Hazard pictograms** GHS02
- **Hazard statements**
Flammable liquid and vapour.
- **Precautionary statements**
Wear protective gloves/protective clothing/eye protection/face protection.
Keep container tightly closed.
In case of fire: Use for extinction: CO₂, sand, extinguishing powder.
Dispose of contents/container in accordance with local/regional/national/international regulations.
- **2.3 Other hazards** Use only for intended scope of application
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Chemical characterisation: Mixtures**
- **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 64-17-5 EINECS: 200-578-6	ethanol	Flam. Liq. 2, H225	50-100%
	Initiator	Acute Tox. 3, H301	2.5-5%
	Catalyst	Eye Dam. 1, H318 Acute Tox. 4, H302	1-2.5%

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

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- **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 with full jet
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Do not flush with water or aqueous cleansing agents
- **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 disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** For dental use only.
- **Information about fire - and explosion protection:** Keep ignition sources away - Do not smoke.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** See storage instructions on package
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **8.1 Control parameters**
- **Ingredients with limit 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.
- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
- **Respiratory protection:** Not required.
- **Protection of hands:** Not required.
- **Material of gloves** Not applicable.
- **Eye protection:** Safety glasses

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Trade name: Futurabond U Liquid 2

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SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Fluid
Colour:	Colourless
Odour:	Characteristic
Odour threshold:	Not determined.

· pH-value at 20 °C: 7

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

· Flash point: 23 °C

· Flammability (solid, gaseous): Not applicable.

· Decomposition temperature: Not determined.

· Self-igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

Density at 20 °C:	0.9 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:	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

· Thermal decomposition / conditions to be avoided: No decomposition if used 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: No dangerous decomposition products known.

SECTION 11: Toxicological information

· 11.1 Information on toxicological effects

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

· Primary irritant effect:

· Skin corrosion/irritation

Testing according to ISO 10993-1/10993-10 showed no skin irritation for this product when fully cured

· 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.

· 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:** No further relevant information available.
- **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:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course 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 together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- | | |
|---|--|
| · 14.1 UN-Number | UN1170 |
| · ADR, IMDG, IATA | |
| · 14.2 UN proper shipping name | - |
| · ADR | 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) |
| · IMDG | ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) |
| · IATA | ETHANOL SOLUTION |
| · 14.3 Transport hazard class(es) | - |
| · ADR, IMDG, IATA | |
|  | |
| · Class | 3 Flammable liquids. |
| · Label | 3 |
| · 14.4 Packing group | - |
| · ADR, IMDG, IATA | II |
| · 14.5 Environmental hazards: | Not applicable. |

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Trade name: Futurabond U Liquid 2

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· Marine pollutant:	No
· 14.6 Special precautions for user	Not applicable. Warning: Flammable liquids.
· Danger code (Kemler):	33
· EMS Number:	F-E, <u>S-E</u>
· Stowage Category	A
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L
· Transport category	2
· Tunnel restriction code	D/E
· UN "Model Regulation":	UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II

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** P5c FLAMMABLE LIQUIDS
- **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

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Scientific department
- **Contact:** Tel.: +49 (0)4721-719-0
- **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)
 PBT: Persistent, Bioaccumulative and Toxic
 vPvB: very Persistent and very Bioaccumulative
 Flam. Liq. 2: Flammable liquids – Category 2
 Flam. Liq. 3: Flammable liquids – Category 3
 Acute Tox. 3: Acute toxicity – Category 3
 Acute Tox. 4: Acute toxicity – Category 4
 Eye Dam. 1: Serious eye damage/eye irritation – Category 1
- *** Data compared to the previous version altered.**

GB