Printing date 05/13/2015 Reviewed on 05/13/2015

1 Identification

- · Product identifier
- · Trade name: Solobond Plus adhesive
- · 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
- · 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. 2 H225 Highly flammable liquid and vapor.



Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

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

- · Label elements
- · Hazard pictograms GHS02, GHS07
- · Signal word Danger
- · Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

· Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Wear protective gloves / eye protection.

Wear protective clothing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If skin irritation or rash occurs: Get medical advice/attention.

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.

(Contd. on page 2)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus adhesive

 (Contd. of page 1)

 • Dangerous components:

 67-64-1
 acetone
 50-100%

 1565-94-2
 BIS-GMA
 10-25%

 109-16-0
 Triethylene glycol dimethacrylate
 10-25%

 868-77-9
 2-hydroxyethyl methacrylate
 5-10%

 Catalyst
 ≤ 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.
- · 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 Ensure adequate ventilation
- 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

- · 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: No special requirements.
- $\cdot \textbf{Information about storage in one common storage facility:} \ Not\ required.$
- · Further information about storage conditions:

Keep receptacle tightly sealed.

See storage instructions on package

(Contd. on page 3)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus adhesive

(Contd. of page 2)

· 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:

67-64-1 acetone (50-100%)

PEL Long-term value: 2400 mg/m³, 1000 ppm REL Long-term value: 590 mg/m³, 250 ppm

TLV Short-term value: (1782) NIC-1187 mg/m³, (750) NIC-500 ppm Long-term value: (1188) NIC-594 mg/m³, (500) NIC-250 ppm

BEI

· Ingredients with biological limit values:

67-64-1 acetone (50-100%)

BEI 50 mg/L

Medium: urine Time: end of shift

Parameter: Acetone (nonspecific)

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

The usual precautionary measures for handling chemicals should be followed.

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
Color: Yellowish
Odor: Characteristic

· pH-value: Not determined.

· Change in condition

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

• Flash point: $-12 \, ^{\circ}C \, (10 \, ^{\circ}F)$

(Contd. on page 4)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus adhesive

	(Contd. of page 3)
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Density:	Not determined.
· Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
· Viscosity: Dynamic: Kinematic: · Other information	Not determined. Not determined. 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.
- · Conditions to avoid No further relevant information available.
- $\cdot \textbf{Incompatible materials:} \ No \ further \ relevant \ information \ available.$
- · 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:		
67-64-1	aceton	e
Oral	LD50	5800 mg/kg (rat)
Dermal	LD50	20000 mg/kg (rabbit)

- · 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 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.	
· OSHA-Ca (Occupational Safety & Health Administration)	

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.

(Contd. on page 5)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus adhesive

(Contd. of page 4)

- · Persistence and degradability No further relevant information available.
- · 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.

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

UN-Number		
DOT, ADR, IMDG, IATA	UN1090	
UN proper shipping name		
DOT	Acetone	
ADR	1090 Acetone	
IMDG, IATA	ACETONE	
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: Marine pollutant:	No	
Special precautions for user	Warning: Flammable liquids	
Danger code (Kemler):	33	
EMS Number:	F- E , S - D	

-USA

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus adhesive

(Contd. of page 5)

· Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code Not applicable.

· UN "Model Regulation": UN1090, Acetone, 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.

- · 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

- · Cancerogenity categories
- · EPA (Environmental Protection Agency)

67-64-1 acetone

I

· TLV (Threshold Limit Value established by ACGIH)

67-64-1 acetone

A4

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 GHS02, GHS07
- · Signal word Danger
- · Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

· Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Wear protective gloves / eye protection.

Wear protective clothing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If skin irritation or rash occurs: Get medical advice/attention.

(Contd. on page 7)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus adhesive

(Contd. of page 6)

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 MSDS: Scientific department
- · Contact: Tel.: +49 (0)4721-719-0
- · Date of preparation / last revision 05/13/2015 / 16
- · 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Flam. Liq. 2: Flammable liquids, Hazard Category 2 Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

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

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

USA

Printing date 05/13/2015 Reviewed on 05/13/2015

1 Identification

- · Product identifier
- · Trade name: Solobond Plus primer
- · 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
- · Details of the supplier of the safety data sheet
- · 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.

Eye Irrit. 2A H319 Causes serious eye irritation.

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

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

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

· Precautionary statements

Wear protective gloves / eye protection.

Wear protective clothing.

If skin irritation or rash occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

- · 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:		
868-77-9	2-hydroxyethyl methacrylate	10-25%
67-64-1	acetone	10-25%
27813-02-1	Hydroxypropylmethacrylate	10-25%
	Catalyst	≤ 2.5%

4 First-aid measures

- · Description of first aid measures
- · After inhalation: Seek medical treatment in case of complaints.

(Contd. on page 2)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus primer

(Contd. of page 1)

- · 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.
- · 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

- · **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: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions:

See storage instructions on package

Keep receptacle tightly sealed.

 \cdot 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:

67-64-1 acetone (10-25%)

PEL Long-term value: 2400 mg/m³, 1000 ppm

REL Long-term value: 590 mg/m³, 250 ppm

TLV Short-term value: (1782) NIC-1187 mg/m³, (750) NIC-500 ppm Long-term value: (1188) NIC-594 mg/m³, (500) NIC-250 ppm

BEI

(Contd. on page 3)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus primer

(Contd. of page 2)

· Ingredients with biological limit values:

67-64-1 acetone (10-25%)

BEI 50 mg/L

Medium: urine Time: end of shift

Parameter: Acetone (nonspecific)

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

The usual precautionary measures for handling chemicals should be followed.

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
Color: Colorless
Odor: Characteristic

• pH-value at 20 • C (68 • F): 2.5

· Change in condition

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

• Flash point: Not applicable.

· Auto igniting: Product is not selfigniting.

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

• Density at 20 °C (68 °F): 1.01 g/cm³ (8.428 lbs/gal)

· Solubility in / Miscibility with

Water: Fully miscible.

· Viscosity:

Dynamic: Not determined. **Kinematic:** Not determined.

• Other information No further relevant information available.

-USA

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus primer

(Contd. of page 3)

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.
- · 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: 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
7681-49-4	sodium fluoride	3
· NTP (National Toxicology Program)		
None of the ingredients is listed.		
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the	e ingredients is listed.	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · 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.

USA

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus primer

(Contd. of page 4)

13 Disposal considerations

- · 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.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

· UN-Numb	er
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· DOT, ADR, ADN, IMDG, IATA

Void

· UN proper shipping name

· DOT, ADR, ADN, IMDG, IATA

Void

· Transport hazard class(es)

· DOT, ADR, ADN, IMDG, IATA

· Class

Void

· Packing group

· DOT, ADR, IMDG, IATA

Void

· Environmental hazards:

· Marine pollutant:

No

· Special precautions for user

Not applicable.

· Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code

Not applicable.

· UN "Model Regulation":

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

(Contd. on page 6)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Solobond Plus primer

· Cancerogenity categories

(Contd. of page 5)

Cunceroge	my caregories	
· EPA (Envi	ronmental Protection Agency)	
67-64-1 ac	etone	I
· TLV (Thre	shold Limit Value established by ACGIH)	
67-64-1	acetone	A4
128-37-0	2,6-di-tert-butyl-p-cresol	A4
7681-49-4	sodium fluoride	A4
· NIOSH-Ca	(National Institute for Occupational Safety and Health)	

· GHS label elements

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

· Hazard pictograms GHS07

None of the ingredients are listed

- · Signal word Warning
- · Hazard statements

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

· Precautionary statements

Wear protective gloves / eye protection.

Wear protective clothing.

If skin irritation or rash occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

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 MSDS: Scientific department
- · Contact: Tel.: +49 (0)4721-719-0
- · Date of preparation / last revision 05/13/2015 / 8
- · 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)

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

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

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

USA