



SAFETY DATA SHEET

SECTION 1. Identification of the substance or mixture and of the supplier

- 1.1 Product identifier
Trade Name:
CERAMAGE UP
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: Dental material
Uses advised against: No further data
- 1.3 Details of the supplier of the safety data sheet
Company/Undertaking identification
Manufacturer's Name: SHOFU DENTAL GmbH
Address: An der Pönt 70, 40885 Ratingen, Germany
Phone: +49 (0) 2102-8664-0
Fax: +49 (0) 2102-8664-64
E-Mail: info@shofu.de
Section in Charge: Quality Management & Regulatory Affairs
- 1.4 Emergency Telephone Number
+49-2102-8664-53 (SHOFU DENTAL GmbH) 24 hours / 7 days

SECTION 2. Hazards identification

- 2.1 Classification of the substance or mixture
CLASSIFICATION (EC 1272/2008)
- | | | |
|---------------|------|-------------------------------------|
| Skin Irrit. 2 | H315 | Causes skin irritation |
| Skin Sens. 1 | H317 | May cause an allergic skin reaction |
| Eye Irrit. 2 | H319 | Causes serious eye irritation |

- 2.2 Label elements
LABEL IN ACCORDANCE WITH (EC) NO.1272/2008



GHS07

HAZARD-DETERMINING COMPONENTS OF LABELLING

UDMA

SIGNAL WORD

Warning

HAZARD STATEMENTS

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

PRECAUTIONARY STATEMENTS

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

(Contd. on page2)



SAFETY DATA SHEET

(Contd. of page1)

P302+P352

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

P305+P351+P338

IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P501

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

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

SECTION 3. Composition/information on ingredients

3.1 Chemical characterization: Mixtures

3.2 Description: Mixture of substances listed below with nonhazardous additions.

3.3 Dangerous components:

Cas: 72869-86-4 EINECS: 276-957-5	UDMA	20-35 %
	Skin Irrit. 2, H315; Skin Sens. 1, H317 Eye Irrit. 2, H319	

3.4 Additional information: For the wording of the listed risk phrases refer to section 2.

SECTION 4. First-aid measures

4.1 Description of first aid measures

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present. and easy to do. If eye irritation persists, get medical advice/attention.

Skin contact: Wash immediately with soap and plenty of water. If on skin, skin irritation, get medical advice/attention.

Ingestion: Rinse mouth. Get medical advice/attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptom concerning breath goes out, call a POISON CENTER or 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. Fire-fighting measures

5.1 Extinguishing Media:

CO₂, Dry chemical, Foam, Dry sand

5.2 Special hazards arising from the substance or mixture:

No further relevant information available.

5.3 Advice for firefighters:

Wear fire protective cloth and self-contained breathing apparatus, if necessary.

(Contd. on page3)



SAFETY DATA SHEET

(Contd. of page2)

SECTION 6. Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures:
Avoid eye and skin contact.
- 6.2 Environmental Precautions:
Send to approved treatment/disposal company or dispose according to local, state and federal regulations.
- 6.3 Methods and material for containment and cleaning up:
Wipe up and discard in a suitable container.
- 6.4 Reference to other section:
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:
Avoid inhalation of grindings and prolonged skin contact with uncured resin.
- 7.2 Conditions for safe storage, including any incompatibilities:
Store in a cool and dark area.
- 7.3 Specific end use(s):
No further relevant information available.

SECTION 8. Exposure controls/personal protection

- 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.
- 8.2 Exposure controls:
Respiratory Protection:
Required (use dust mask while grinding or finishing.)
- Skin Protection: Hand Protection
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.
- 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.

(Contd. on page4)



SAFETY DATA SHEET

(Contd. of page3)

- 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: Safety goggles

SECTION 9. Physical and chemical properties

- 9.1 Information on basic physical and chemical properties
- | | |
|--|--|
| Appearance/Odor/Colour: | Colored low viscosity paste with sweet odor. |
| Odour threshold | Not determined. |
| pH | Not determined. |
| Melting point/freezing point | Not determined. |
| Boiling Point: | Not determined. |
| Flash point: | Not determined. |
| Evaporation rate | Not determined. |
| Flammability (solid, gas) | Not applicable. |
| Upper/lower flammability or explosive limits | Not determined. |
| Vapour pressure | Not determined. |
| Vapour density | Not determined. |
| Relative Density: | 1.5 (water=1) |
| Solubility: water solubility | Insoluble |
| Partition coefficient: n-octanol/water | Not determined. |
| Auto-ignition temperature | Not determined. |
| Decomposition temperature | Not determined. |
| Viscosity | Not determined. |
| Explosive properties | Not applicable. |
| Oxidising properties | Not applicable. |
- 9.2 Other information
No further relevant information available.

SECTION 10. Stability and reactivity

- 10.1 Reactivity:
Polymerization will occur with heat, light.
- 10.2 Chemical stability:
Stable under normal temperatures and pressures.
- 10.3 Possibility of hazardous reactions:
No dangerous reactions known.
- 10.4 Condition to Avoid:
Direct sunlight, high temperature and heating.
- 10.5 Incompatible materials:
Strong oxidizing materials.

(Contd. on page5)



SAFETY DATA SHEET

(Contd. of page4)

10.6 Hazardous Decomposition Products:
None under normal conditions of storage and use.

SECTION 11. Toxicological information

11.1 Information on toxicological effects:

Acute toxicity:	Based on available data, the classification criteria are not met
Skin corrosion/irritation:	Skin Irrit. 2; H315 Causes skin irritation.
Eye damage/irritation:	Eye Irrit. 2; H319 Causes serious eye irritation.
Sensitization to the respiratory tract:	Based on available data, the classification criteria are not met.
Skin sensitization:	Skin Sens. 1; H317 May cause an allergic skin reaction.
Germ cell mutagenicity/Genotoxicity:	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.
Effects on or via lactation:	Lack of data.
Specific target organ toxicity (single exposure):	Based on available data, the classification criteria are not met.
Specific target organ toxicity (repeated exposure):	Based on available data, the classification criteria are not met.

SECTION 12. Ecological information

12.1 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.

12.5 Results of PBT and vPvB assessment:
Not applicable.

12.6 Other adverse effects:
No further relevant information available.

SECTION 13. Disposal considerations

13.1 Waste treatment methods:
Dispose of contents/container to in accordance with local/regional/national/international regulations.

SECTION 14. Transport information

14.1 UN number:	Void
14.2 UN proper shipping name:	Void
14.3 Transport hazard class(es):	Void

(Contd. on page6)



SAFETY DATA SHEET

page 6/6
CERAMAGE UP

Printing date: June 10, 2020

(Contd. of page5)

- 14.4 Packing group: Void
- 14.5 Environmental hazards: No further relevant information available.
- 14.6 Special precautions for user: Not applicable.
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

SECTION 15. Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:
- EU REGULATIONS: See Section 2
 - Other regulations, limitations and prohibitive regulations:
The product is a medical device according to the EC-directive 93/42/EEC.
- 15.2 Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

SECTION 16. Other information

This product is intended for use by dental professionals. (instrument/material)

Relevant phrases:

- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.

Abbreviations and acronyms:

- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative



SAFETY DATA SHEET

page 1/6
CERAMAGE
OPAQUE & PREOPAQUE
Printing date: June 11, 2020

SECTION 1. Identification of the substance or mixture and of the supplier

- 1.1 Product identifier
Trade Name:
CERAMAGE "OPAQUE & PREOPAQUE"
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: Dental material
Uses advised against: No further data
- 1.3 Details of the supplier of the safety data sheet
Company/Undertaking identification
Manufacturer's Name: SHOFU DENTAL GmbH
Address: An der Pönt 70, 40885 Ratingen, Germany
Phone: +49 (0) 2102-8664-0
Fax: +49 (0) 2102-8664-64
E-Mail: info@shofu.de
Section in Charge: Quality Management & Regulatory Affairs
- 1.4 Emergency Telephone Number
+49-2102-8664-53 (SHOFU DENTAL GmbH) 24 hours / 7 days

SECTION 2. Hazards identification

- 2.1 Classification of the substance or mixture
CLASSIFICATION (EC 1272/2008)
- | | | |
|---------------|------|-------------------------------------|
| Skin Irrit. 2 | H315 | Causes skin irritation |
| Skin Sens. 1 | H317 | May cause an allergic skin reaction |
| Eye Irrit. 2 | H319 | Causes serious eye irritation |

- 2.2 Label elements
LABEL IN ACCORDANCE WITH (EC) NO.1272/2008



GHS07

HAZARD-DETERMINING COMPONENTS OF LABELLING

UDMA
2-hydroxyethyl methacrylate

SIGNAL WORD

Warning

HAZARD STATEMENTS

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

PRECAUTIONARY STATEMENTS

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

(Contd. on page2)



SAFETY DATA SHEET

page 2/6
CERAMAGE
OPAQUE & PREOPAQUE
Printing date: June 11, 2020

(Contd. on page1)

P302+P352

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

P305+P351+P338

IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P501

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

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

SECTION 3. Composition/information on ingredients

3.1 Chemical characterization: Mixtures

3.2 Description: Mixture of substances listed below with nonhazardous additions.

3.3 Dangerous components:

Cas: 72869-86-4 EINECS: 276-957-5	UDMA	25-35 %
	Skin Irrit. 2, H315; Skin Sens. 1, H317 Eye Irrit. 2, H319	
Cas: 868-77-9 EINECS: 212-782-2	2-hydroxyethyl methacrylate	4-7 %
	Skin Irrit. 2, H315; Skin Sens. 1, H317 Eye Irrit. 2, H319	

3.4 Additional information: For the wording of the listed risk phrases refer to section 2.

SECTION 4. First-aid measures

4.1 Description of first aid measures

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present. and easy to do. If eye irritation persists, get medical advice/attention.

Skin contact: Wash immediately with soap and plenty of water. If on skin, skin irritation, get medical advice/attention.

Ingestion: Rinse mouth. Get medical advice/attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptom concerning breath goes out, call a POISON CENTER or 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. Fire-fighting measures

5.1 Extinguishing Media:

CO₂, Dry chemical, Foam, Dry sand

5.2 Special hazards arising from the substance or mixture:

No further relevant information available.

(Contd. on page3)



SAFETY DATA SHEET

page 3/6
CERAMAGE
OPAQUE & PREOPAQUE
Printing date: June 11, 2020

(Contd. on page2)

5.3 Advice for firefighters:

Wear fire protective cloth and self-contained breathing apparatus, if necessary.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Avoid eye and skin contact.

6.2 Environmental Precautions:

Send to approved treatment/disposal company or dispose according to local, state and federal regulations.

6.3 Methods and material for containment and cleaning up:

Absorb with suitable absorbent (e.g. paper towel, cloth, dry sand, saw dust and vermiculite) and discard in a suitable container.

6.4 Reference to other section:

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:

Avoid inhalation of grindings and prolonged skin contact with uncured resin.

7.2 Conditions for safe storage, including any incompatibilities:

Store in a cool and dark area.

7.3 Specific end use(s):

No further relevant information available.

SECTION 8. Exposure controls/personal protection

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.

8.2 Exposure controls:

Respiratory Protection:

Required (use dust mask while grinding or finishing.)

Skin Protection: Hand Protection

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

(Contd. on page4)



SAFETY DATA SHEET

page 4/6
CERAMAGE
OPAQUE & PREOPAQUE
Printing date: June 11, 2020

(Contd. on page3)

- 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: Safety goggles

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance/Odor/Colour:	Creamy paste multiple shades yellowish white to yellowish brown with sweet odor from acrylate.
Odour threshold	Not determined.
pH	Not determined.
Melting point/freezing point	Not determined.
Boiling Point:	Not determined.
Flash point:	Not determined.
Evaporation rate	Not determined.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not determined.
Vapour pressure	Not determined.
Vapour density	Not determined.
Relative Density:	1.69 (OPAQUE), 1.57 (PREOPAQUE) (water=1)
Solubility: water solubility	Insoluble
Partition coefficient: n-octanol/water	Not determined.
Auto-ignition temperature	Not determined.
Decomposition temperature	Not determined.
Viscosity	Not determined.
Explosive properties	Not applicable.
Oxidising properties	Not applicable.

9.2 Other information

No further relevant information available.

SECTION 10. Stability and reactivity

10.1 Reactivity:

Polymerization will occur with heat, light.

(Contd. on page5)



SAFETY DATA SHEET

page 5/6
CERAMAGE
OPAQUE & PREOPAQUE
Printing date: June 11, 2020

(Contd. on page4)

- 10.2 Chemical stability:
Stable under normal temperatures and pressures.
- 10.3 Possibility of hazardous reactions:
No dangerous reactions known.
- 10.4 Condition to Avoid:
Direct sunlight, high temperature and heating.
- 10.5 Incompatible materials:
Strong oxidizing materials.
- 10.6 Hazardous Decomposition Products:
None under normal conditions of storage and use.

SECTION 11. Toxicological information

- 11.1 Information on toxicological effects:
- Acute toxicity: 2-Hydroxy Ethyl Methacrylate;
Oral rat LD50 5050 mg/kg
Dermal rabbit LD50 > 3000 mg/kg
- Skin corrosion/irritation: Skin Irrit. 2; H315 Causes skin irritation.
- Eye damage/irritation: Eye Irrit. 2; H319 Causes serious eye irritation.
- Sensitization to the respiratory tract:
Based on available data, the classification criteria are not met.
- Skin sensitization: Skin Sens. 1; H317 May cause an allergic skin reaction.
- Germ cell mutagenicity/Genotoxicity:
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.
- Effects on or via lactation: Lack of data.
- Specific target organ toxicity (single exposure):
Based on available data, the classification criteria are not met.
- Specific target organ toxicity (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:
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.
- 12.5 Results of PBT and vPvB assessment:
Not applicable.
- 12.6 Other adverse effects:
No further relevant information available.

(Contd. on page6)



SAFETY DATA SHEET

page 6/6
CERAMAGE
OPAQUE & PREOPAQUE
Printing date: June 11, 2020

(Contd. on page5)

SECTION 13. Disposal considerations

13.1 Waste treatment methods:

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

SECTION 14. Transport information

- | | |
|---|--|
| 14.1 UN number: | Void |
| 14.2 UN proper shipping name: | Void |
| 14.3 Transport hazard class(es): | Void |
| 14.4 Packing group: | Void |
| 14.5 Environmental hazards: | No further relevant information available. |
| 14.6 Special precautions for user: | Not applicable. |
| 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: | Not applicable. |

SECTION 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

- EU REGULATIONS: See Section 2
- Other regulations, limitations and prohibitive regulations:
The product is a medical device according to the EC-directive 93/42/EEC.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

SECTION 16. Other information

This product is intended for use by dental professionals. (instrument/material)

Relevant phrases:

- H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

Abbreviations and acronyms:

- EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative



SAFETY DATA SHEET

page 1/6
CERAMAGE
OXYBARRIER
Printing date: April 1, 2020

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

- 1.1 Product identifier
Trade Name:
CERAMAGE "OXYBARRIER"
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: Dental material
Uses advised against: No further data
- 1.3 Details of the supplier of the safety data sheet
Company/Undertaking identification
Manufacturer's Name: SHOFU DENTAL GmbH
Address: An der Pönt 70, 40885 Ratingen, Germany
Phone: +49 (0) 2102-8664-0
Fax: +49 (0) 2102-8664-64
E-Mail: info@shofu.de
Section in Charge: Quality Management & Regulatory Affairs
- 1.4 Emergency Telephone Number
+49-2102-8664-53 (SHOFU DENTAL GmbH) 24 hours / 7 days

SECTION 2. Hazards identification

- 2.1 Classification of the substance or mixture
CLASSIFICATION (EC 1272/2008)
Not applicable.
- 2.2 Label elements
LABEL IN ACCORDANCE WITH (EC) NO.1272/2008
Void
HAZARD-DETERMINING COMPONENTS OF LABELLING
SIGNAL WORD
Void
HAZARD STATEMENTS
Void
PRECAUTIONARY STATEMENTS
Void
- 2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3. Composition/information on ingredients

- 3.1 Chemical characterization: Mixtures
- 3.2 Description: Mixture of substances listed below with nonhazardous additions.
- 3.3 Dangerous components: Void
Glycerin [Cas No. 56-81-5, EINECS 200-289-5] 70-80 %
Polyethylene Glycol [Cas No. 25322-68-3, EINECS 500-038-2]

(Contd. on page2)



SAFETY DATA SHEET

page 2/6
CERAMAGE
OXYBARRIER
Printing date: April 1, 2020

3.4 Additional information: For the wording of the listed risk phrases refer to section 2.

(Contd. of page1)

SECTION 4. First-aid measures

4.1 Description of first aid measures

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present. and easy to do. If eye irritation persists, get medical advice/attention.

Skin contact: Wash immediately with soap and plenty of water. If on skin, skin irritation, get medical advice/attention.

Ingestion: Rinse mouth. If you feel un-well, get medical advice/attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptom concerning breath goes out, call a POISON CENTER or 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. Fire-fighting measures

5.1 Extinguishing Media:

Water, CO₂, Dry chemical, Foam, Dry sand

5.2 Special hazards arising from the substance or mixture:

No further relevant information available.

5.3 Advice for firefighters:

Wear fire protective cloth and self-contained breathing apparatus, if necessary.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Not required.

6.2 Environmental Precautions:

Send to approved treatment/disposal company or dispose according to local, state and federal regulations.

6.3 Methods and material for containment and cleaning up:

Wipe up and discard in a suitable container.

6.4 Reference to other section:

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:

Only adequately trained personal should handle this product. For use in dentistry only.

7.2 Conditions for safe storage, including any incompatibilities:

Keep away from direct sunlight or heat.

7.3 Specific end use(s):

No further relevant information available.

(Contd. on page3)



SAFETY DATA SHEET

(Contd. of page2)

SECTION 8. Exposure controls/personal protection

8.1 Control parameters:

Exposure limits:

Component		ACGIH (TLV)
Glycerin	TWA: 10 mg/m ³ 8 hr (mist only)	TWA 10 mg/m ³ (Glycerin mist)

8.2 Exposure controls:

Respiratory Protection:

Not required.

Skin Protection:

Hand Protection

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

· 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: Safety goggles

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance/Odor/Colour:	Blue colored paste
Odour threshold	Not determined.
pH	Not determined.
Melting point/freezing point	Not determined.
Boiling Point:	Not determined.
Flash point:	Not determined.
Evaporation rate	Not determined.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not determined.
Vapour pressure	Not determined.

(Contd. on page4)



SAFETY DATA SHEET

page 4/6
CERAMAGE
OXYBARRIER
Printing date: April 1, 2020

(Contd. of page3)

Vapour density	Not determined.
Relative Density:	1.25 (water=1)
Solubility: water solubility	Soluble
Partition coefficient: n-octanol/water	Not determined.
Auto-ignition temperature	Not determined.
Decomposition temperature	Not determined.
Viscosity	Not determined.
Explosive properties	Not applicable.
Oxidising properties	Not applicable.
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:
Stable under normal temperatures and pressures.
- 10.3 Possibility of hazardous reactions:
No dangerous reactions known.
- 10.4 Condition to Avoid:
Avoid exposure to direct sun light on the container.
- 10.5 Hazardous Decomposition Products:
None under normal conditions of storage and use.

SECTION 11. Toxicological information

- 11.1 Information on toxicological effects:
- | | | | | |
|-----------------|----------------------|-------------------|------|-----------------------------|
| Acute toxicity: | Glycerin; | Oral rat | LD50 | 12600 mg/kg |
| | | Dermal rabbit | LD50 | > 10 g/kg |
| | | Inhalation
rat | LC50 | > 570 mg/m ³ /1H |
| | Polyethylene Glycol; | Oral rat | LD50 | 22 g/kg |
| | | Dermal rabbit | LD50 | > 20g/kg |
- Skin corrosion/irritation: Based on available data, the classification criteria are not met.
- Eye damage/irritation: Based on available data, the classification criteria are not met.
- Sensitization to the respiratory tract:
Based on available data, the classification criteria are not met.
- Skin sensitization: Based on available data, the classification criteria are not met.
- Germ cell mutagenicity/Genotoxicity:
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.
- Effects on or via lactation: Lack of data.

(Contd. on page5)



SAFETY DATA SHEET

page 5/6
CERAMAGE
OXYBARRIER
Printing date: April 1, 2020

(Contd. of page4)

- Specific target organ toxicity (single exposure):
Based on available data, the classification criteria are not met.
- Specific target organ toxicity (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:
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.
- 12.5 Results of PBT and vPvB assessment:
Not applicable.
- 12.6 Other adverse effects:
No further relevant information available.

SECTION 13. Disposal considerations

- 13.1 Waste treatment methods:
Dispose of contents/container to in accordance with local/regional/national/international regulations.

SECTION 14. Transport information

- 14.1 UN number: Void
- 14.2 UN proper shipping name: Void
- 14.3 Transport hazard class(es): Void
- 14.4 Packing group: Void
- 14.5 Environmental hazards: No further relevant information available.
- 14.6 Special precautions for user: Not applicable.
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:
Not applicable.

SECTION 15. Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:
- EU REGULATIONS: See Section 2
 - Other regulations, limitations and prohibitive regulations:
The product is a medical device according to the EC-directive 93/42/EEC.
- 15.2 Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

(Contd. on page6)



SAFETY DATA SHEET

page 6/6
CERAMAGE
OXYBARRIER
Printing date: April 1, 2020

(Contd. of page5)

SECTION 16. Other information

This product is intended for use by dental professionals. (instrument/material)

Abbreviations and acronyms:

- EINESC: European Inventory of Existing Commercial 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



SAFETY DATA SHEET

page 1/6
Dura-Polish

Printing date: April 3, 2020

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

- 1.1 Product identifier
Trade Name:
Dura-Polish
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: Dental material
Uses advised against: No further data
- 1.3 Details of the supplier of the safety data sheet
Company/Undertaking identification
Manufacturer's Name: SHOFU DENTAL GmbH
Address: An der Pönt 70, 40885 Ratingen, Germany
Phone: +49 (0) 2102-8664-0
Fax: +49 (0) 2102-8664-64
E-Mail: info@shofu.de
Section in Charge: Quality Management & Regulatory Affairs
- 1.4 Emergency Telephone Number
+49-2102-8664-53 (SHOFU DENTAL GmbH) 24 hours / 7 days

SECTION 2. Hazards identification

- 2.1 Classification of the substance or mixture
CLASSIFICATION (EC 1272/2008)
Not applicable.
- 2.2 Label elements
LABEL IN ACCORDANCE WITH (EC) NO.1272/2008
Void
HAZARD-DETERMINING COMPONENTS OF LABELLING
SIGNAL WORD
Void
HAZARD STATEMENTS
Void
PRECAUTIONARY STATEMENTS
Void
- 2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3. Composition/information on ingredients

- 3.1 Chemical characterization: Mixtures
3.2 Description: Mixture of substances listed below with nonhazardous additions.
3.3 Dangerous components: Void

(Contd. on page2)

Version Number 2
Revision date: April 1, 2020



SAFETY DATA SHEET

page 2/6
Dura-Polish

Printing date: April 3, 2020

(Contd. on page1)

Al₂O₃ [Cas No. 1344-28-1, EINECS 215-691-6] 70-80 %
Beeswax
Others

3.4 Additional information: For the wording of the listed risk phrases refer to section 2.

SECTION 4. First-aid measures

- 4.1 Description of first aid measures
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present. and easy to do. If eye irritation persists, get medical advice/attention.
- Skin contact: Wash immediately with soap and plenty of water. If on skin, skin irritation, get medical advice/attention.
- Ingestion: Rinse mouth. If you feel un-well, get medical advice/attention.
- Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptom concerning breath goes out, call a POISON CENTER or 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. Fire-fighting measures

- 5.1 Extinguishing Media:
Water, CO₂, Dry chemical, Foam, Dry sand
- 5.2 Special hazards arising from the substance or mixture:
No further relevant information available.
- 5.3 Advice for firefighters:
Wear fire protective cloth and self-contained breathing apparatus, if necessary.

SECTION 6. Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures:
Not required.
- 6.2 Environmental Precautions:
Send to approved treatment/disposal company or dispose according to local, state and federal regulations.
- 6.3 Methods and material for containment and cleaning up:
Wipe up and discard in a suitable container.
- 6.4 Reference to other section:
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:
Use in accordance with instruction. In case of grinding and polishing, wear dust mask and safety glasses, and using dust respirator and local exhaust.

(Contd. on page3)

Version Number 2
Revision date: April 1, 2020



SAFETY DATA SHEET

(Contd. on page2)

- 7.2 Conditions for safe storage, including any incompatibilities:
Store in a cool and dark area with container tightly closed.
- 7.3 Specific end use(s):
No further relevant information available.

SECTION 8. Exposure controls/personal protection

- 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.
- 8.2 Exposure controls:
Respiratory Protection:
Dust mask
- Skin Protection: Hand Protection
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.
- 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: Safety goggles

SECTION 9. Physical and chemical properties

- 9.1 Information on basic physical and chemical properties
- | | |
|------------------------------|-------------------|
| Appearance/Odor/Colour: | Blue-purple solid |
| Odour threshold | Not determined. |
| pH | Not determined. |
| Melting point/freezing point | Not determined. |
| Boiling Point: | Not determined. |
| Flash point: | Not determined. |

(Contd. on page4)



SAFETY DATA SHEET

(Contd. on page3)

Evaporation rate	Not determined.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not determined.
Vapour pressure	Not determined.
Vapour density	Not determined.
Relative Density:	Not determined.
Solubility: water solubility	Insoluble
Partition coefficient: n-octanol/water	Not determined.
Auto-ignition temperature	Not determined.
Decomposition temperature	Not determined.
Viscosity	Not determined.
Explosive properties	Not applicable.
Oxidising properties	Not applicable.
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:
Stable under normal temperatures and pressures.
- 10.3 Possibility of hazardous reactions:
No dangerous reactions known.
- 10.4 Condition to Avoid:
Avoid exposure to direct sun light on the container.
- 10.5 Hazardous Decomposition Products:
None under normal conditions of storage and use.

SECTION 11. Toxicological information

- 11.1 Information on toxicological effects:
- | | |
|---|---|
| Acute toxicity: | Based on available data, the classification criteria are not met. |
| Skin corrosion/irritation: | Based on available data, the classification criteria are not met. |
| Eye damage/irritation: | Based on available data, the classification criteria are not met. |
| Sensitization to the respiratory tract: | Based on available data, the classification criteria are not met. |
| Skin sensitization: | Based on available data, the classification criteria are not met. |
| Germ cell mutagenicity/Genotoxicity: | 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. |
| Effects on or via lactation: | Lack of data. |
| Specific target organ toxicity (single exposure): | Based on available data, the classification criteria are not met. |

(Contd. on page5)



SAFETY DATA SHEET

page 5/6
Dura-Polish

Printing date: April 3, 2020

(Contd. on page4)

Specific target organ toxicity (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:

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.

12.5 Results of PBT and vPvB assessment:

Not applicable.

12.6 Other adverse effects:

No further relevant information available.

SECTION 13. Disposal considerations

13.1 Waste treatment methods:

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

SECTION 14. Transport information

14.1 UN number:

Void

14.2 UN proper shipping name:

Void

14.3 Transport hazard class(es):

Void

14.4 Packing group:

Void

14.5 Environmental hazards:

No further relevant information available.

14.6 Special precautions for user:

Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:

Not applicable.

SECTION 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

- EU REGULATIONS: See Section 2
- Other regulations, limitations and prohibitive regulations:

The product is a medical device according to the EC-directive 93/42/EEC.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

SECTION 16. Other information

This product is intended for use by dental professionals. (instrument/material)

(Contd. on page6)



SAFETY DATA SHEET

page 6/6
Dura-Polish

Printing date: April 3, 2020

(Contd. on page5)

Abbreviations and acronyms:

- EINESC: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative



SAFETY DATA SHEET

page 1/6
Dura-Polish DIA

Printing date: April 3, 2020

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

- 1.1 Product identifier
Trade Name:
Dura-Polish DIA
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: Dental material
Uses advised against: No further data
- 1.3 Details of the supplier of the safety data sheet
Company/Undertaking identification
Manufacturer's Name: SHOFU DENTAL GmbH
Address: An der Pönt 70, 40885 Ratingen, Germany
Phone: +49 (0) 2102-8664-0
Fax: +49 (0) 2102-8664-64
E-Mail: info@shofu.de
Section in Charge: Quality Management & Regulatory Affairs
- 1.4 Emergency Telephone Number
+49-2102-8664-53 (SHOFU DENTAL GmbH) 24 hours / 7 days

SECTION 2. Hazards identification

- 2.1 Classification of the substance or mixture
CLASSIFICATION (EC 1272/2008)
Not applicable.
- 2.2 Label elements
LABEL IN ACCORDANCE WITH (EC) NO.1272/2008
Void
HAZARD-DETERMINING COMPONENTS OF LABELLING
SIGNAL WORD
Void
HAZARD STATEMENTS
Void
PRECAUTIONARY STATEMENTS
Void
- 2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3. Composition/information on ingredients

- 3.1 Chemical characterization: Mixtures
3.2 Description: Mixture of substances listed below with nonhazardous additions.
3.3 Dangerous components: Void

(Contd. on page2)

Version Number 2
Revision date: April 1, 2020



SAFETY DATA SHEET

page 2/6
Dura-Polish DIA

Printing date: April 3, 2020

(Contd. on page1)

Synthetic diamond powder 60-70 %
Beeswax
Others

3.4 Additional information: For the wording of the listed risk phrases refer to section 2.

SECTION 4. First-aid measures

4.1 Description of first aid measures

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present. and easy to do. If eye irritation persists, get medical advice/attention.

Skin contact: Wash immediately with soap and plenty of water. If on skin, skin irritation, get medical advice/attention.

Ingestion: Rinse mouth. If you feel un-well, get medical advice/attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptom concerning breath goes out, call a POISON CENTER or 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. Fire-fighting measures

5.1 Extinguishing Media:

Water, CO₂, Dry chemical, Foam, Dry sand

5.2 Special hazards arising from the substance or mixture:

No further relevant information available.

5.3 Advice for firefighters:

Wear fire protective cloth and self-contained breathing apparatus, if necessary.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Not required.

6.2 Environmental Precautions:

Send to approved treatment/disposal company or dispose according to local, state and federal regulations.

6.3 Methods and material for containment and cleaning up:

Wipe up and discard in a suitable container.

6.4 Reference to other section:

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:

Use in accordance with instruction. In case of grinding and polishing, wear dust mask and safety glasses, and using dust respirator and local exhaust.

(Contd. on page3)

Version Number 2
Revision date: April 1, 2020



SAFETY DATA SHEET

(Contd. on page2)

- 7.2 Conditions for safe storage, including any incompatibilities:
Store in a cool and dark area with container tightly closed.
- 7.3 Specific end use(s):
No further relevant information available.

SECTION 8. Exposure controls/personal protection

- 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.
- 8.2 Exposure controls:
Respiratory Protection:
Dust mask
- Skin Protection: Hand Protection
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.
- 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: Safety goggles

SECTION 9. Physical and chemical properties

- 9.1 Information on basic physical and chemical properties
- | | |
|------------------------------|------------------|
| Appearance/Odor/Colour: | Light gray solid |
| Odour threshold | Not determined. |
| pH | Not determined. |
| Melting point/freezing point | Not determined. |
| Boiling Point: | Not determined. |
| Flash point: | Not determined. |

(Contd. on page4)



SAFETY DATA SHEET

(Contd. on page3)

Evaporation rate	Not determined.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not determined.
Vapour pressure	Not determined.
Vapour density	Not determined.
Relative Density:	Not determined.
Solubility: water solubility	Insoluble
Partition coefficient: n-octanol/water	Not determined.
Auto-ignition temperature	Not determined.
Decomposition temperature	Not determined.
Viscosity	Not determined.
Explosive properties	Not applicable.
Oxidising properties	Not applicable.
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:
Stable under normal temperatures and pressures.
- 10.3 Possibility of hazardous reactions:
No dangerous reactions known.
- 10.4 Condition to Avoid:
Avoid exposure to direct sun light on the container.
- 10.5 Hazardous Decomposition Products:
None under normal conditions of storage and use.

SECTION 11. Toxicological information

- 11.1 Information on toxicological effects:
- | | |
|---|---|
| Acute toxicity: | Based on available data, the classification criteria are not met. |
| Skin corrosion/irritation: | Based on available data, the classification criteria are not met. |
| Eye damage/irritation: | Based on available data, the classification criteria are not met. |
| Sensitization to the respiratory tract: | Based on available data, the classification criteria are not met. |
| Skin sensitization: | Based on available data, the classification criteria are not met. |
| Germ cell mutagenicity/Genotoxicity: | 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. |
| Effects on or via lactation: | Lack of data. |
| Specific target organ toxicity (single exposure): | Based on available data, the classification criteria are not met. |

(Contd. on page5)



SAFETY DATA SHEET

page 5/6
Dura-Polish DIA

Printing date: April 3, 2020

(Contd. on page4)

Specific target organ toxicity (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:

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.

12.5 Results of PBT and vPvB assessment:

Not applicable.

12.6 Other adverse effects:

No further relevant information available.

SECTION 13. Disposal considerations

13.1 Waste treatment methods:

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

SECTION 14. Transport information

14.1 UN number:

Void

14.2 UN proper shipping name:

Void

14.3 Transport hazard class(es):

Void

14.4 Packing group:

Void

14.5 Environmental hazards:

No further relevant information available.

14.6 Special precautions for user:

Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:

Not applicable.

SECTION 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

- EU REGULATIONS: See Section 2
- Other regulations, limitations and prohibitive regulations:

The product is a medical device according to the EC-directive 93/42/EEC.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

SECTION 16. Other information

This product is intended for use by dental professionals. (instrument/material)

(Contd. on page6)



SAFETY DATA SHEET

page 6/6
Dura-Polish DIA

Printing date: April 3, 2020

(Contd. on page5)

Abbreviations and acronyms:

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative