

Revision Date 01/12/2018

Revision 3

## SAFETY DATA SHEET

### TOKUYAMA SHIELD FORCE PLUS

#### 1. IDENTIFICATION

<b>Product Name</b>	TOKUYAMA SHIELD FORCE PLUS
<b>Identified uses</b>	Protective sealant for treatment of hypersensitive dentin. For dental professionals only.
<b>Supplier</b>	Tokuyama Dental America Inc. Tel: (877) 378 3548 (Toll-Free)
<b>Contact Person</b>	<a href="http://www.tokuyama-dental.com/tdc/contact.html">http://www.tokuyama-dental.com/tdc/contact.html</a>
<b>Manufacturer</b>	Tokuyama Dental Corporation 38-9, Taitou 1-chome, Taitou-ku, Tokyo 110-0016, Japan TEL: +81-3-3835-2261
<b>Emergency Telephone</b>	California Poison Control System - San Francisco Division San Francisco General Hospital Bldg 5 Rm 2A21, 1001 Potrero Ave, San Francisco Emergency telephone number: +1 800 222 1222 E-mail address: <a href="mailto:coadmin@calpoison.org">coadmin@calpoison.org</a> <a href="http://www.calpoison.org">http://www.calpoison.org</a>  Nationa Capital Poison Center 3201 New Mexico Ave, Ste 310, Washington DC Emergency telephone number: +1 800 222 1222 Telephone number: +1 202 362 3867 Facsimile numer: +1 202 362 8377 E- mail address: <a href="mailto:pc@poison.org">pc@poison.org</a> <a href="http://www.poison.org">http://www.poison.org</a>

#### 2. HAZARD(S) IDENTIFICATION

<b>Appearance</b>	Liquid
<b>Color</b>	Light green
<b>Odor</b>	Characteristic
<b>GHS Pictogram</b>	



**Signal Word** Danger

<b>Hazard Statements</b>	H225	Highly flammable liquid and vapour.
	H315	Causes skin irritation.
	H317	May cause an allergic skin reaction.
	H319	Causes serious eye irritation.
	H336	May cause drowsiness or dizziness.
	H361fd	Suspected of damaging fertility or the unborn child.
	H412	Harmful to aquatic life with long lasting effects.

**Precautionary Statements**

P210	Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
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P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P261	Avoid breathing vapour/spray.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P403+233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container in accordance with local regulations.

### Contains

2-HYDROXYETHYL METHACRYLATE  
 bisphenol A di(2-hydroxy propoxy) dimethacrylate  
 diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide  
 PROPAN-2-OL  
 triethylene glycol dimethacrylate

### GHS Classification

Physical and Chemical Hazards	Flam. Liq. 2 - H225
Human health	Skin Irrit. 2 - H315; Eye Irrit. 2 - H319; Skin Sens. 1 - H317; Repr. 2 - H361fd; STOT SE 3 - H336
Environment	Aquatic Chronic 3 - H412

### Hazard Not Otherwise Classified (HNOC)

Not applicable.

### OSHA Regulatory Status

This Product is Hazardous under the OSHA Hazard Communication Standard.

### General Information

May cause irritation to the respiratory system. Solvent vapors are hazardous and may cause nausea, sickness and headaches. Vapors may cause drowsiness and dizziness. IF SWALLOWED: Slightly irritating. ( DIGESTIVE SYSTEM. ) The liquid is irritating to eyes and skin. Product has a defatting effect on skin. May cause sensitization by skin contact.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

<b>2-HYDROXYETHYL METHACRYLATE</b>	<b>10-30%</b>
<b>CAS No.: 868-77-9</b>	
GHS Classification Skin Irrit. 2 - H315; Eye Irrit. 2 - H319; Skin Sens. 1 - H317	
<b>bisphenol A di(2-hydroxy propoxy) dimethacrylate</b>	<b>10-20%</b>
<b>CAS No.: 1565-94-2</b>	
GHS Classification Skin Sens. 1 - H317; Aquatic Chronic 3 - H412	
<b>camphorquinone</b>	<b>&lt; 1%</b>
<b>CAS No.: 10373-78-1</b>	
GHS Classification Skin Irrit. 2 - H315; Eye Irrit. 2 - H319; STOT SE 3 - H335	

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<b>dibutyl hydroxy toluene</b>  <b>CAS No.: 128-37-0</b>	<b>&lt; 1%</b>
GHS Classification Aquatic Chronic 1 - H410	
<b>diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide</b>  <b>CAS No.: 75980-60-8</b>	<b>&lt; 1%</b>
GHS Classification Repr. 2 - H361f	
<b>MEQUINOL</b>  <b>CAS No.: 150-76-5</b>	<b>&lt; 1%</b>
GHS Classification Acute Tox. 4 - H302; Eye Irrit. 2 - H319; Skin Sens. 1 - H317	
<b>methacryloxyalkyl acid phosphate</b>  <b>CAS No.: 52628-03-2</b>	<b>10-30%</b>
GHS Classification Skin Irrit. 2 - H315; Eye Irrit. 2 - H319	
<b>PROPAN-2-OL</b>  <b>CAS No.: 67-63-0</b>	<b>30-60%</b>
GHS Classification Flam. Liq. 2 - H225; Eye Irrit. 2 - H319; STOT SE 3 - H336	
<b>triethylene glycol dimethacrylate</b>  <b>CAS No.: 109-16-0</b>	<b>5-10%</b>
GHS Classification Skin Irrit. 2 - H315; Eye Irrit. 2 - H319; Skin Sens. 1 - H317	

### 4. FIRST-AID MEASURES

#### Description of first aid measures

##### General Information

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

##### Inhalation

Move the exposed person to fresh air at once.

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### Ingestion

Immediately rinse mouth and drink plenty of water (200-300 ml). Get medical attention if any discomfort continues.

### Skin Contact

Wash the skin immediately with soap and water.

### Eye Contact

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Contact physician if irritation persists.

### Most important symptoms and effects, both acute and delayed

#### Inhalation

Irritating to respiratory system. Vapors may cause drowsiness and dizziness.

#### Ingestion

Slightly irritating. ( DIGESTIVE SYSTEM. )

#### Skin Contact

Irritating to skin. Product has a defatting effect on skin. May cause sensitization by skin contact.

#### Eye Contact

Irritating and may cause redness and pain.

### Indication of any immediate medical attention and special treatment needed

#### Notes To The Physician

CAUTION! First aid personnel must be aware of own risk during rescue! Wear suitable protective clothing.

## 5. FIRE-FIGHTING MEASURES

#### Auto Ignition Temperature (°C)

Not available.

#### Flammability Limit - Lower(%)

Not available.

#### Flammability Limit - Upper(%)

Not available.

**Flash point (°C)** 20.0 °C

#### Extinguishing Media

Fire can be extinguished using: Foam. Carbon dioxide or dry powder.

#### Specific Hazards

When heated and in case of fire, irritating vapors/gases may be formed.

#### Special Fire Fighting Procedures

Avoid breathing fire vapors.

#### Protective Equipment For Fire-Fighters

Wear full protective clothing.

## 6. ACCIDENTAL RELEASE MEASURES

#### Personal Precautions

Wear protective clothing as described in Section 8 of this material safety data sheet.

#### Environmental Precautions

Do not discharge into drains, water courses or onto the ground.

#### Spill Clean Up Methods

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Absorb in vermiculite, dry sand or earth and place into containers. Do not contaminate water sources or sewer.

#### Reference to other sections

For personal protection, see section 8.

## 7. HANDLING AND STORAGE

#### Handling

Do not handle until all safety precautions have been read and understood. All handling to take place in well-ventilated area.

#### Storage

Store under refrigerated conditions at temperatures between 0 to 10°C (32 to 50°F). Keep away from heat, direct sunlight, sparks and open flames.

#### Storage Class

Flammable liquid storage.

## TOKUYAMA SHIELD FORCE PLUS

### Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT	STD	TWA (8-hrs)		STEL (15 min)		Notes
dibutyl hydroxy toluene	ACGIH		2 mg/m <sup>3</sup>			A4
PROPAN-2-OL	ACGIH	200 ppm		400 ppm		A4
PROPAN-2-OL	PEL	400 ppm	980 mg/m <sup>3</sup>			

  

COMPONENT	IDLH
PROPAN-2-OL	2000 ppm

ACGIH=American Conference of Governmental Industrial Hygienists.

A4: Not Classifiable as a Human Carcinogen.

### Protective Equipment



### Engineering Measures

Provide adequate general and local exhaust ventilation.

### Respiratory Equipment

In case of inadequate ventilation use suitable respirator.

### Hand Protection

Wear protective gloves.

### Eye Protection

Wear approved safety goggles.

### Other Protection

Wear appropriate clothing to prevent any possibility of skin contact.

### Hygiene Measures

DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly with soap & water if skin becomes contaminated. Promptly remove any clothing that becomes contaminated. Use appropriate skin cream to prevent drying of skin. When using do not eat, drink or smoke.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Liquid
<b>Color</b>	Light green
<b>Odor</b>	Characteristic
<b>Solubility</b>	No information available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Melting point (°C)</b>	Not available.
<b>Relative density</b>	1.00
<b>Vapor density (air=1)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>pH-Value, Conc. Solution</b>	Not available.
<b>pH-Value, Diluted Solution</b>	2.0

## TOKUYAMA SHIELD FORCE PLUS

### Viscosity

Not available.

### Decomposition temperature (°C)

Not available.

### Odour Threshold, Lower

Not available.

### Odour Threshold, Upper

Not available.

**Flash point** 20.0 °C

### Auto Ignition Temperature (°C)

Not available.

### Flammability Limit - Lower(%)

Not available.

### Flammability Limit - Upper(%)

Not available.

### Partition Coefficient

(N-Octanol/Water)

Not available.

### Explosive properties

Not available.

### Other Flammability

Not available.

### Oxidising properties

Not available.

## 10. STABILITY AND REACTIVITY

### Reactivity

No information available.

### Stability

HIGHLY FLAMMABLE!

Hazardous reactions:

Not available.

### Conditions To Avoid

Keep away from heat, sparks and open flame. Protect against direct sunlight.

### Materials To Avoid

Strong oxidizing agents.

### Hazardous Decomposition Products

Toxic gases are generated when heated.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity:

Not available.

### Skin Corrosion/Irritation:

Irritating to skin. Product has a defatting effect on skin.

### Serious eye damage/irritation:

Irritating and may cause redness and pain.

### Respiratory or skin sensitisation:

#### Respiratory sensitisation

Not available.

#### Skin sensitisation

May cause sensitization by skin contact.

### Germ cell mutagenicity:

Not available.

## TOKUYAMA SHIELD FORCE PLUS

### Carcinogenicity:

#### **IARC Carcinogenicity**

Butylated hydroxytoluene (BHT) , PROPAN-2-OL : IARC Group 3 Not classifiable as to its carcinogenicity to humans.

#### **NTP - Carcinogenicity**

Not listed.

#### **OSHA - Carcinogenicity**

Not listed.

### Reproductive Toxicity:

No information available.

### Specific target organ toxicity - single exposure:

May cause irritation to the respiratory system. Vapors may cause drowsiness and dizziness.

### Specific target organ toxicity - repeated exposure:

#### **STOT - Repeated exposure**

Not available.

### Aspiration hazard:

#### **Viscosity**

Not available.

## 12. ECOLOGICAL INFORMATION

### **Ecotoxicity**

The product contains a substance which is harmful to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

### **Toxicity**

No data available.

### **Degradability**

No data available.

### **Bioaccumulative potential**

No data available on bioaccumulation.

### **Partition coefficient**

Not available.

### **Mobility:**

No information available.

### **Results of PBT and vPvB assessment**

This product does not contain any PBT or vPvB Substances.

### **Other adverse effects**

Not known.

## 13. DISPOSAL CONSIDERATIONS

### **Disposal Methods**

Dispose of waste and residues in accordance with local authority requirements.

## 14. TRANSPORT INFORMATION

<b>UN No. (DOT/TDG)</b>	1133
<b>UN No. (IMDG)</b>	1133
<b>UN No. (ICAO)</b>	1133
<b>DOT Proper Shipping Name</b>	ADHESIVES, CONTAINING A FLAMMABLE LIQUID
<b>TDG Proper Shipping Name</b>	ADHESIVES, CONTAINING A FLAMMABLE LIQUID
<b>DOT Hazard Class</b>	3
<b>DOT Hazard Label</b>	Flammable Liquid

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TDG Class	3
TDG Label(s)	3
IMDG Class	3
ICAO Class	3

### Transport Labels



DOT Pack Group	II
IMDG Pack Group	II
Air Pack Group	II

### Environmentally Hazardous Substance/Marine Pollutant

No.

EMS F-E, S-D

Special precautions for user Not available.

Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code Notes

Not applicable.

## 15. REGULATORY INFORMATION

### Regulatory Status (US)

This Product is Hazardous under the OSHA Hazard Communication Standard.

### Regulatory References

29 CFR 1910. 1200(g) Federal Regulations (OSHA Standard).

### US Federal Regulations

#### SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

None of the ingredients are listed.

#### CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

None of the ingredients are listed.

#### SARA Extremely Hazardous Substances EPCRA Reportable Quantities

None of the ingredients are listed.

#### SARA 313 Emission Reporting

The following ingredients are listed.

PROPAN-2-OL

#### CAA Accidental Release Prevention

None of the ingredients are listed.

#### SARA (311/312) Hazard Categories

Fire Acute Chronic

#### OSHA Highly Hazardous Chemicals

None of the ingredients are listed.

### US State Regulations

#### California Proposition 65 Carcinogens and Reproductive Toxins

None of the ingredients are listed.

#### California Air Toxics "Hot Spots" (A-I)

The following ingredients are listed.

PROPAN-2-OL

#### California Air Toxics "Hot Spots" (A-II)

None of the ingredients are listed.



## TOKUYAMA SHIELD FORCE PLUS

### Massachusetts "Right To Know" List

The following ingredients are listed.

dibutyl hydroxy toluene

MEQUINOL

PROPAN-2-OL

### Rhode Island "Right To Know" List

The following ingredients are listed.

dibutyl hydroxy toluene

MEQUINOL

PROPAN-2-OL

### Minnesota "Right To Know" List

The following ingredients are listed.

dibutyl hydroxy toluene

MEQUINOL

PROPAN-2-OL

### New Jersey "Right To Know" List

The following ingredients are listed.

dibutyl hydroxy toluene

MEQUINOL

PROPAN-2-OL

### Pennsylvania "Right To Know" List

The following ingredients are listed.

dibutyl hydroxy toluene

MEQUINOL

PROPAN-2-OL

### International Inventories

#### EU - EINECS/ELINCS

All ingredients are listed or exempt.

#### Canada – DSL/NDSL

All ingredients are listed or exempt.

#### US - TSCA

All ingredients are listed or exempt.

#### US – TSCA 12(b) Export Notification

None of the ingredients are listed.

## 16. OTHER INFORMATION

### Revision Comments

Revision Date	01/12/2018
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### Disclaimer

The information which is contained in this document is based on available data. However, as such has been obtained from various sources, including independent laboratories, it is given without warranty or representation that is complete, accurate and can be relied upon. Tokuyama Dental Corp. has not attempted to conceal in any way the deleterious aspects of the product listed herein, but makes no warranty as to such information.