



SAFETY DATA SHEET

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HY-Bond Zinc Phosphate Cement
POWDER
Printing date: August 26, 2019

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

1.1 Product identifier

Trade Name:

HY-Bond Zinc Phosphate Cement "POWDER"

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 CORPORATION**

Address: 1225 Stone Drive, San Marcos, CA 92078 USA

Toll Free: 1-800-827-4638

Phone: 760-736-3277

Fax: 760-736-3276

E-Mail: customer-service@shofu.com

Section in Charge: Quality Management & Regulatory Affairs

1.4 Emergency Telephone Number

For emergencies only. Call CHEMTREC: +1 703-741-5970 / 1-800-424-9300 (24 hours)

SECTION 2. Hazards identification

2.1 GHS Classification

HEALTH HAZARDS

SKIN CORROSION/IRRITATION

Category 2

EYE DAMAGE/IRRITATION

Category 1

SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (SINGLE EXPOSURE)

Category 1 (systemic toxicity)

Category 2 (bone)

SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (REPEATED EXPOSURE)

Category 1(lung)

ENVIRONMENTAL HAZARD

HAZARDOUS TO THE AQUATIC ENVIRONMENT-ACUTE HAZARD

Category 2

HAZARDOUS TO THE AQUATIC ENVIRONMENT-CHRONIC HAZARD

Category 3

The thing without mention is out of a classification object. Or cannot classify it.

2.2 Label elements

SYMBOL



GHS05 GHS08

SIGNAL WORD Danger



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HAZARD STATEMENTS

- Causes skin irritation
- Causes serious eye damage
- Causes damage to organs (systemic toxicity)
- May cause damage to organs (bone)
- Causes damage to organs through prolonged or repeated exposure (lung)
- Toxic to aquatic life.
- Harmful to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS

[Prevention]

- Obtain special instruction before use.
- Do not handle until all safety precautions have been read and understood.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.

[Response]

- IF ON SKIN: Wash with plenty of water and soap.
- If skin irritation occurs: Get medical advice/attention.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Get medical advice/attention if you feel unwell.
- Collect spillage.

[Storage]

- Store in a cool and dark area.

[Disposal]

- Dispose of contents and container in accordance with 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:

Zinc Oxide [Cas No. 1314-13-2] 80-90 %

Other components:

Magnesia(MgO) [Cas No.1309-48-4]

Others

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



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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 and seek medical advice if necessary.

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:

This product is not flammable.

5.2 Special hazards arising from the substance or mixture:

No further relevant information available.

5.3 Advice for firefighters:

No special measures required.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Avoid contact with eyes and skin. Do not breathe dust.

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:

Handle in a well ventilated area. Avoid prolonged inhalation.

7.2 Conditions for safe storage, including any incompatibilities:

Store in a cool and dry conditions with lid tightly closed.

7.3 Specific end use(s):

No further relevant information available.



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SECTION 8. Exposure controls/personal protection

8.1 Control parameters:

Exposure limits	Zinc Oxide;		
	[ACGIH 2013]	TLV-TWA	2 mg/m ³ (R)
		TLV-STEL	10 mg/m ³ (R)

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:	White odourless powder
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:	≈ 2.5 (water=1)
Solubility: water solubility	Insoluble.



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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 direct sunlight and high temperature.

10.5 Incompatible materials:

No further relevant information available.

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:	Zinc oxide;				
	Oral	rat	LD50	> 5000 mg/kg	
	Dermal	rabbit	LD50	> 5000 mg/kg	
	Inhalation (dust)	rat	LC50	> 5.7 mg/L	

Skin corrosion/irritation: Skin Irrit. 2; H315 Causes skin irritation.

Eye damage/irritation: Eye Dam.1 ; H318 Causes serious eye damage.

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):

STOT SE 1; H370 Causes damage to organs (systemic toxicity).

STOT SE 2; H371 May cause damage to organs (bone)

Specific target organ toxicity (repeated exposure):

STOT RE 1; H372 Causes damage to organs through prolonged or repeated exposure (lung).

Aspiration hazard: Based on available data, the classification criteria are not met.



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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: 3077
- 14.2 UN proper shipping name: Environmentally hazardous substance, solid, n.o.s.
- 14.3 Transport hazard class(es): 9
- 14.4 Packing group: III
- 14.5 Environmental hazards: Yes
- 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 informati

Follow all regulations in your country.

SECTION 16. Other information

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

Relevant phrases:

- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H370 Causes damage to organs (systemic toxicity).
- H371 May cause damage to organs (bone)
- H372 Causes damage to organs through prolonged or repeated exposure (lung).
- H401 Toxic to aquatic life.
- H412 Harmful to aquatic life with long lasting effects.

Abbreviations and acronyms:

CAS: Chemical Abstracts Service (division of the American Chemical Society)

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LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative



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

- 1.1 Product identifier
 Trade Name:
HY-Bond Zinc Phosphate Cement "LIQUID"
- 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 CORPORATION**
 Address: 1225 Stone Drive, San Marcos, CA 92078 USA
 Toll Free: 1-800-827-4638
 Phone: 760-736-3277
 Fax: 760-736-3276
 E-Mail: customer-service@shofu.com
 Section in Charge: Quality Management & Regulatory Affairs
- 1.4 Emergency Telephone Number
 For emergencies only. Call CHEMTREC: +1 703-741-5970 / 1-800-424-9300 (24 hours)

SECTION 2. Hazards identification

- 2.1 GHS Classification
 HEALTH HAZARDS

ACUTE TOXICITY-ORAL	Category 4
SKIN CORROSION/IRRITATION	Category 1A
EYE DAMAGE/IRRITATION	Category 1
SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (SINGLE EXPOSURE)	Category 2 (systemic toxicity) Category 3 (respiratory tract irritation)
SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (REPEATED EXPOSURE)	Category 2 (lung)

 ENVIRONMENTAL HAZARD

HAZARDOUS TO THE AQUATIC ENVIRONMENT-ACUTE HAZARD	Category 2
HAZARDOUS TO THE AQUATIC ENVIRONMENT-CHRONIC HAZARD	Category 2

The thing without mention is out of a classification object. Or cannot classify it.

- 2.2 Label elements
 SYMBOL



GHS05 GHS07 GHS08 GHS09



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SIGNAL WORD Danger

HAZARD STATEMENTS

- Harmful if swallowed
- Causes severe skin burns and eye damage
- May cause respiratory irritation
- May cause damage to organs (systemic toxicity)
- May cause damage to organs through prolonged or repeated exposure (lung)
- Toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS

[Prevention]

- Obtain special instruction before use.
 - Do not handle until all safety precautions have been read and understood.
 - Avoid breathing dust/fume/gas/mist/vapours/spray.
 - Wash hands thoroughly after handling.
 - Do not eat, drink or smoke when using this product.
 - Use only outdoors or in a well-ventilated area.
 - Avoid release to the environment.
 - Wear protective gloves/protective clothing/eye protection/face protection.
- [Response]
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 - IF ON SKIN or hair: Take off immediately all contaminated clothing. Rinse skin with water or shower.
 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - Get medical advice/attention if you feel unwell.
 - Collect spillage.
- [Storage]
- Store in a cool and dark area.
- [Disposal]
- Dispose of contents and container in accordance with 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:

Phosphoric acid [Cas No.7664-38-2]	50-60 %
Zinc oxide [Cas No.1314-13-2]	1-5 %



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Other components:

Aluminum hydroxide	1-10 %
Water	30-35 %

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 and seek medical advice if necessary.

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:

Foam, CO₂, Powder, Dry sand

5.2 Special hazards arising from the substance or mixture:

In case of fire, irritation gases and fumes may emit.

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 contact with eyes and skin.

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 inhaling and contact with eyes and skin.

7.2 Conditions for safe storage, including any incompatibilities:

Store in a cool and dry place out of direct sunlight.

Keep containers closed.



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

SECTION 8. Exposure controls/personal protection

8.1 Control parameters:

Exposure limits	Phosphoric acid; [ACGIH 2014]	TLV-TWA	1 mg/m ³
		TLV-STEL	3 mg/m ³
	Zinc Oxide; [ACGIH 2013]	TLV-TWA	2 mg/m ³ (R)
		TLV-STEL	10 mg/m ³ (R)

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:	Odourless, color less liquid
Odour threshold	Not determined.
pH	1-3 (as a 2% solution)
Melting point/freezing point	Not determined.
Boiling Point:	Not determined.
Flash point:	Not determined.
Evaporation rate	Not determined.



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Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not determined.
Vapour pressure	Not determined.
Vapour density	Not determined.
Relative Density:	1.59 (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 direct sunlight and high temperature.
- 10.5 Incompatible materials:
No further relevant information available.
- 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: Acute Tox. 4; H302 Harmful if swallowed.
- Phosphoric acid;
- | | | | |
|------------|--------|------|------------------|
| Oral | rat | LD50 | 1250 mg/kg |
| Dermal | rabbit | LD50 | 2740 mg/kg |
| Inhalation | rat | LC50 | > 0.85 mg/L (4H) |
- Zinc oxide;
- | | | | |
|-------------------|--------|------|--------------|
| Oral | rat | LD50 | > 5000 mg/kg |
| Dermal | rabbit | LD50 | > 5000 mg/kg |
| Inhalation (dust) | rat | LC50 | > 5.7 mg/L |
- Skin corrosion/irritation: Skin Corr. 1A ; H314 Causes severe skin burns and eye damage.
- Eye damage/irritation: Eye Dam. 1; H314 Causes severe skin burns and eye damage.
- 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.



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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):
STOT SE 2; H371 May cause damage to organs (systemic toxicity).
STOT SE 3; H335 May cause respiratory irritation.

Specific target organ toxicity (repeated exposure):
STOT RE 3; H373 May cause damage to organs through prolonged or repeated exposure (lung).

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: 1805
- 14.2 UN proper shipping name: Phosphoric acid, solution
- 14.3 Transport hazard class(es): 8 Corrosive substances.
- 14.4 Packing group: III
- 14.5 Environmental hazards: No
- 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

Follow all regulations in your country.



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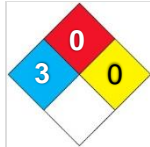
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SECTION 16. Other information

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

NFPA ratings for USA (scale 0-4)

Phosphoric acid;



Health = 3
Fire = 0
Reactivity = 0

Relevant HMIS-Ratings (Scale 0-4)

Phosphoric acid;

Health Hazard	3
Fire Hazard	0
Reactivity	0

Health = 3
Fire = 0
Reactivity = 0

Relevant phrases:

- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H335 May cause respiratory irritation.
- H371 May cause damage to organs (systemic toxicity).
- H373 May cause damage to organs through prolonged or repeated exposure (lung).
- H411 Toxic to aquatic life with long lasting effects.

Abbreviations and acronyms:

- 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