

Shenzhen Zhongchuang 3D Technology Co., Ltd.

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SAFETY DATA SHEET

Ceramic & Glass-Ceramic Stain Kit — PRS-S-G Series (FULL 16 Sections)

According to GHS Rev.10 / EU CLP / OSHA HazCom | Lead-Free · Cadmium-Free · MMA-Free · Resin-Free Ceramic

Product Name	Ceramic & Glass-Ceramic Stain Kit — PRS-S-C/G Series (G01–G21)
Product Type	Low-fusing ceramic stain & glaze paste
Intended Use	Zirconia, lithium disilicate, glass-ceramic final crown characterization
Issue Date / Version	2025-06-14 / V1.0

Section 1 — Identification

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Manufacturer: Shenzhen Zhongchuang 3D Technology Co., Ltd.

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Section 2 — Hazards Identification

Classification: Not classified as hazardous per GHS criteria for fired ceramic. Unfired paste contains organic carrier which may cause mild skin/eye irritation. Firing produces fumes — ensure adequate ventilation.

Signal Word	WARNING (for unfired paste only)
Hazard Statements	H315 — Causes skin irritation (unfired paste) H319 — Causes serious eye irritation (unfired paste) Firing fumes may irritate the respiratory tract
Pictogram	GHS07 — Exclamation Mark (unfired paste); No pictogram required for fired ceramic
Precautionary Statements	P280 — Wear protective gloves/eye protection P261 — Avoid breathing fumes during firing P264 — Wash hands thoroughly after handling

Section 3 — Composition / Information on Ingredients

Ingredient	Content	Function
Glass Frit ($\text{SiO}_2\text{-B}_2\text{O}_3\text{-Al}_2\text{O}_3\text{-K}_2\text{O-Na}_2\text{O}$)	65–75%	Glass matrix; CTE 9.5–11 $\times 10^{-6}/\text{K}$
Iron Oxide (CAS: 1309-37-1)	2–8%	Red / Yellow pigment
Titanium Dioxide (CAS: 13463-67-7)	2–6%	White pigment; opacifier
Manganese Oxide (CAS: 1313-13-9)	0.5–2%	Brown pigment
Cobalt Aluminate (CAS: 1345-16-0)	0.2–1%	Blue pigment
Cerium Oxide (CAS: 1306-38-3)	0.5–2%	Fluorescence agent
Organic Carrier (Glycol-based)	10–15%	Paste former; burns out cleanly at $> 400^\circ\text{C}$

✓ Lead-free · Cadmium-free · MMA-free · Resin-free — No hazardous polymerization risk

Section 4 — First Aid Measures

Skin Contact: Wash thoroughly with soap and water. If irritation persists, seek medical attention.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present. Seek medical advice if irritation continues.

Inhalation (firing fumes): Move to fresh air immediately. If respiratory symptoms persist, consult a physician.

Ingestion: Rinse mouth with water. Drink 1–2 glasses of water. Do NOT induce vomiting. Seek medical attention.

Section 5 — Firefighting Measures

Paste contains combustible organic carrier. Suitable extinguishing media: Dry powder, CO₂, alcohol-resistant foam.

Unsuitable: Direct water jet (may spread burning material).

Hazardous combustion products: CO₂, CO, trace organic fragments.

Special protective actions: Firefighters should wear self-contained breathing apparatus (SCBA).

Section 6 — Accidental Release Measures

Small spill: Collect paste with spatula or lint-free paper. Wipe area with ethanol. Place waste in sealed chemical waste container.

Large spill: Contain with dam. Collect into chemical waste drum. Dispose via licensed handler.

Environmental precautions: Do NOT flush into sewer or waterways. Ventilate area after cleanup.

Section 7 — Handling and Storage

Handling: Wear nitrile gloves. Avoid ingestion and prolonged skin contact. Use in ventilated area, especially during firing.

Storage: Keep sealed at 5–30°C. Avoid water contamination and freezing. Keep away from children. Shelf life: 12 months from manufacture date (unopened).

Section 8 — Exposure Controls / Personal Protection

Engineering Controls: Use in ventilated area. Porcelain furnace must have local exhaust ventilation.

Hand Protection: Nitrile gloves recommended.

Eye Protection: Safety glasses with side shields.

Respiratory Protection: Dust mask (KN95/N95) when handling powder. Ensure adequate ventilation during firing.

Body Protection: Laboratory coat or work apron.

Section 9 — Physical and Chemical Properties

Appearance	Colored paste (various shades G01–G21)
Odor	Mild characteristic glycol odor
Particle Size	D50 < 5 µm
Solubility (Water)	Insoluble (glass frit); organic carrier partially soluble
Fusing Temperature	700–800°C (dependent on substrate)
CTE (25–500°C)	9.5–11 ×10 ⁻⁶ /K (matched to zirconia and glass-ceramic)
Density	~ 2.5 g/cm ³ (paste form)
pH	Not applicable (non-aqueous paste)

Section 10 — Stability and Reactivity

Stability: Stable under recommended storage and handling conditions (5–30°C, sealed).

Incompatible Materials: Strong acids. Water contamination may cause thickening/alteration of paste rheology.

Hazardous Decomposition: At firing temperatures > 400°C, organic carrier burns out producing CO₂ and trace CO. No hazardous polymerization occurs.

Conditions to Avoid: Freezing, excessive heat (> 50°C), water ingress into containers.

Section 11 — Toxicological Information

Unfired Paste: Mild irritant to skin and eyes due to organic carrier. Not classified as acutely toxic, carcinogenic, mutagenic, or reprotoxic.

Fired Ceramic: Fully inert. Biocompatible per ISO 6872 and ISO 10993 series.

Key Note: Product is lead-free and cadmium-free. No hazardous metal leaching detected under ISO 6486 testing.

Section 12 — Ecological Information

Unfired Paste: Organic carrier component may be harmful to aquatic life. Do not release into environment or waterways.

Fired Ceramic: Inert solid waste. Not expected to present ecological hazard.

Persistence: Glass frit and metal oxides are non-biodegradable but environmentally inert in fired state.

Section 13 — Disposal Considerations

Unfired Paste Waste: Classify as chemical waste. Dispose via licensed medical/chemical waste handler.

Do NOT pour into drains.

Fired Ceramic Waste: Dispose as general solid waste per local regulations (inert ceramic).

Contaminated Packaging: Empty containers may retain residue. Handle as chemical waste unless thoroughly cleaned.

Section 14 — Transport Information

UN Number: Not classified as dangerous goods for transport.

Transport Classification: Non-dangerous, non-toxic, non-flammable solid (paste).

Transport Conditions: Ship as ordinary ceramic material. Avoid extrusion and impact. Keep dry during transit. Protect glass containers from breakage.

Section 15 — Regulatory Information

Standards Compliance: ISO 6872 (Dental Ceramic), ISO 6486 (Lead/Cadmium Release), EU MDR 2017/745, US FDA 21 CFR, REACH (EC) 1907/2006.

Product Status: For professional dental laboratory use only. Not intended for consumer or direct intraoral use.

Operator Requirement: Read TDS and firing curve specifications before use. All operators must be trained in dental ceramic laboratory procedures.

Section 16 — Other Information

This SDS covers the entire PRS-S-G Ceramic & Glass-Ceramic Stain Kit series (G01–G21). One SDS applies to all shades within the series.

For optimal results, use in conjunction with the product TDS (Technical Data Sheet) and follow recommended firing curves for each substrate type.

For batch quality issues, adverse reactions, or technical inquiries, contact: info@ZonMedtech.com.

Disclaimer: The information provided in this SDS is based on current scientific and technical knowledge. It is intended as a safety reference for professional dental laboratories. The manufacturer assumes no liability for damages resulting from improper use, failure to follow instructions, or use outside recommended applications.

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SDS Rev: 2025-06-14 | Product: PRS-S-C/G Series | Lead-Free · Cadmium-Free · MMA-Free · Resin-Free | For Professional Lab Use Only