



Product Usage Guide(Ceramic & Glass-Ceramic Stain Kit)

Model: PRS-S-G Series (G01-G21) | Brand: ZonMed PRS | Low-Fusing Nano Ceramic Paste

1. Product Overview & Indications

PRS-S-G is a low-fusing ceramic stain and glaze paste for extraoral characterization of final zirconia and glass-ceramic restorations. The nano-formulated paste enables precise shade reproduction with excellent firing stability. Supplied at 3 g / 5 g per bottle.

Indications:

- Zirconia crown and bridge staining (full-contour and cut-back).
- Lithium disilicate (e.max) staining and characterization.
- Gingiva porcelain characterization on implant-supported prostheses.
- 3D effect shading, fissure staining and incisal halo effects.

Contraindications:

Not for direct intraoral application. Not for use on uncured resin or metal substrates without an appropriate opaque layer.

2. Shade System

Category Overview

Category	Shade Codes	Firing Temp	Primary Use
Cervical / Body	G01-G04	730-800 C	Red zone at cervical region; body shade base
Incisal Translucent	G10-G14, G18	730-800 C	Incisal edge translucency; halo effect
Gingiva / Soft Tissue	G08-G09	730-800 C	Gingiva pink characterization; vascular accents
Fissure / Shadow	G05-G07, G15-G17	730-800 C	Occlusal fissure staining; shadow depth effects
Glaze / Finish	G19 Clear, G20 Fluorescent	730-800 C	High-gloss protective sealing; fluorescent enhancement

Ceramic Powder Shades (SG01-SG18)

Code	Shade	Usage
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SG01	Red	Gingival highlights, root-surface warmth and chromatic accents on zirconia/porcelain.
SG02	Dark Red	Deepen cervical shades, mucosal transitions and vascular simulations.
SG03	Pink	Soft-tissue and gum contour characterization on hybrid ceramic and zirconia.
SG04	Light Pink	Subtle mucosal highlights and delicate papillary pink aesthetics.
SG05	Sepia	Accentuate fissures, occlusal grooves and deep dentin chroma transitions.
SG06	Bronze	Mature dentin undertones, cervical aging and warm chromatic intensity.
SG07	Khaki	Neutralize high brightness; mimic age spots and brownish-green hue shifts.
SG08	Orange	Internal warmth, mamelon highlights and natural dentin brilliance.
SG09	Yellow	Youthful dentin characterization and occlusal fissure highlights.
SG10	Green	Internal characterization; neutralize unwanted chromatic shifts.
SG11	Dark Green	Deep fissure staining, value modification and natural contrast detail.
SG12	Dark Blue	Neutralize high chroma; deep incisal halos and cool translucent depth.
SG13	Light Blue	Subtle incisal transparency and cool opalescent halo; value adjustment.
SG14	Lilac	Fine-tune reddish-blue undertones and high brightness values.
SG15	Black	Maximum value down-shifting and sharp fissure delineation.
SG16	Gray	Mimic wear facets, metallic masking accents and age-related gray effects.
SG17	Beige	Subtle cervical transitions, root

		exposure simulation and soft blending.
SG18	White	Enamel calcification spots, incisal halo effects and high-value surfaces.

Glaze Powders & Mixing Liquid

Code	Shade	Usage
SG19	Glaze (FP)	Low-temperature glaze for press/CAD glass-ceramic (730 C) and zirconia (800 C); high gloss and wear resistance.
SG20	Glaze	Locks in surface stains, enhances wear resistance and delivers an aesthetic gloss; works with zirconia and glass-ceramic protocols.
SG21	Transparent	Mixing liquid; adjusts consistency, viscosity and brush handling without altering color or firing behavior.

3. Composition

Component	Content	Function
Low-fusing Glass Frit (SiO ₂ -B ₂ O ₃ -Al ₂ O ₃ -K ₂ O)	60-75%	Matrix; CTE 9-11 x10 ⁻⁶ /K
Metal Oxide Pigments	10-25%	Colorants (Fe, Mn, Co, Ti, Ce oxides)
Organic Carrier (glycol-based)	10-15%	Paste former; burns out cleanly at 400 C
Nano Additives	< 2%	Dispersion fineness; thixotropic rheology

Lead-free - Cadmium-free - MMA-free - Resin-free.

4. Technical Data

Property	Specification
Particle Size	D90 < 8 um (laser diffraction)
Firing Temperature	790-800 C (zirconia) / 700-760 C (e.max)
Holding Time	1.5-3 min at peak temperature
CTE (25-500 C)	9.0 x10 ⁻⁶ /K (matched to zirconia & glass-ceramic)
Flexural Strength	>= 800 MPa (after glaze firing on zirconia)

Chemical Solubility	< 100 ug/cm ²
Color Stability	dE < 1.5 after 3 firings
Film Thickness	0.1-0.2 mm (single application)
Gloss (60 deg)	>= 80 GU after glaze firing

5. Compatibility Matrix

Category	Compatible Brands / Types
Zirconia	Cercon ht/xt, 3M Lava Esthetic, Sagemax NexxZr, Aidite, Upcera, Katana, BruxZir; all 3Y/4Y/5Y zirconia
Glass-Ceramic	IPS e.max CAD/MO, Celtra Duo, Suprinity, Vita Suprinity; LT/MT translucency grades
Furnace	Ivoclar Programat P310/CS2/CS4, Dekema Austromat 40T, Nabertherm, Vita Vacumat; vacuum firing recommended
Cooling Rate	< 60 C/min to 400 C (avoid thermal shock / quenching)

6. Firing Curves

Zirconia Standard Curve:

400 C -> hold 2 min (drying) -> heat 45 C/min to 790 C -> hold 1.5 min (with vacuum) -> cool 50 C/min to 400 C -> end.

Glass-Ceramic Curve:

400 C -> hold 2 min (drying) -> heat 55 C/min to 740 C -> hold 1 min -> cool 50 C/min to 400 C -> end.

Important: maximum 3 firings. If the color appears too light, add an additional layer and re-fire; if too dark, grind the surface and re-stain. Do NOT exceed 850 C at any stage.

7. Recommended Application

Step 1 - Preparation - Clean the restoration surface and prepare it to receive the stain (suitable for full-contour or cut-back techniques).

Step 2 - Mixing - Take the required stain; adjust consistency/viscosity with the mixing liquid (SG21) as needed. Do NOT add water.

Step 3 - Application - Apply the stain with a fine brush; use small amounts and build up in layers.

Step 4 - Firing - Fire according to the appropriate curve (zirconia 790 C / glass-ceramic 740 C). Maximum 3 firings. Do not exceed 850 C.

Step 5 - Glaze - Apply glaze (G19 / G20) for a smooth, high-gloss, wear-resistant finish and fire per the glaze protocol.

8. Handling & Safety Precautions

- The unfired paste contains an organic carrier and may cause mild skin / eye irritation. Wear nitrile gloves and safety glasses with side shields.
- During firing the organic carrier burns out; ensure adequate ventilation and local exhaust at the furnace, and avoid breathing the fumes.
- Handle powder with a KN95/N95 dust mask. Do not eat, drink or smoke while handling.
- The paste contains a combustible organic carrier: keep away from ignition sources; extinguish with dry powder, CO2 or alcohol-resistant foam.
- First aid - skin: wash with soap and water; eyes: rinse for at least 15 min; inhalation: move to fresh air. Seek medical attention if irritation persists.
- Professional dental laboratory use only; not for direct intraoral application. Keep away from children.

9. Storage, Shelf Life & Packaging

- Storage: 5-30 C, sealed container, protected from moisture and direct sunlight; avoid freezing and water contamination / ingress.
- Shelf life: 48 months from date of manufacture (unopened). Refer to the product label for the specific date.
- If the paste dries out: add the specialized ceramic diluent (oil-based carrier). Do NOT add water.
- Packaging: 5 g per bottle; kit includes 20 stain bottles + glaze + application brushes.
- Transport: non-dangerous goods; handle as fragile glass containers; avoid impact and inversion during transit.

10. Disposal

- Unfired paste waste: classify as chemical waste; dispose via a licensed handler. Do NOT pour into drains.
- Fired ceramic waste: dispose of as general solid waste (inert ceramic) per local regulations.
- Contaminated packaging: empty containers may retain residue; handle as chemical waste unless thoroughly cleaned.

11. Disclaimer

Except where prohibited by law, the manufacturer assumes no liability for damages resulting from improper use, failure to follow these instructions, or use outside the recommended applications. All operators should be trained in dental ceramic laboratory procedures.