

Product Usage & Processing Guide

Models: PRS-P-C01 / C02 / C03 / C04 | Brand: ZonMed PRS

1. Product Overview

Dental glass-ceramic CAD/CAM blocks for professional dental laboratories, used to fabricate indirect restorations (inlays, onlays, crowns, bridges, veneers). The range covers lithium disilicate, leucite-reinforced and feldspathic ceramics. Blocks are available in sizes 12/14/16/18/20 mm; models C01/C02/C03 support both CAD/CAM milling and heat-press, while C04 is optimized for CAD/CAM milling.

2. Model Selection & Indications

PRS-P-C01 - Lithium Disilicate (HT/MT)

Anterior + posterior single crowns, inlays, onlays, veneers, 3-unit anterior/premolar bridges, implant crowns. Processing: CAD/CAM milling (pre-crystallized, then crystallize at 840-860 C) or heat-press (920-950 C).

PRS-P-C02 - Lithium Disilicate (LT/MO)

Posterior crowns, bridges up to 3 units, implant crowns; cases requiring masking of discolored abutments. Lower translucency for higher masking power. Processing same as C01.

PRS-P-C03 - Leucite-Reinforced (HT/MT)

Anterior crowns, inlays, onlays, veneers; not indicated for posterior bridges. Processing: primarily heat-press (850-880 C); also CAD/CAM millable.

PRS-P-C04 - Feldspathic / Hybrid (HT/MT/LT)

Veneers, inlays, onlays, anterior crowns; excellent aesthetics for minimally invasive restorations. Processing: CAD/CAM milling in fully crystallized state - ready for finishing immediately after milling.

3. Technical Specifications

Property	C01 (LiSi ₂ , HT/MT)	C02 (LiSi ₂ , LT/MO)	C03 (Leucite)	C04 (Feldspathic)
Biaxial Flexural Strength	350-470 MPa	350-450 MPa	120-180 MPa	110-150 MPa
Fracture Toughness	2.0-3.0	2.0-2.8	1.2-1.5	1.0-1.3
Vickers Hardness	580 +/- 30 HV	580 +/- 30 HV	540 +/- 30 HV	520 +/- 30 HV
Elastic Modulus	95 +/- 10 GPa	95 +/- 10 GPa	65 +/- 10 GPa	60 +/- 10 GPa

CTE (25-500 C)	10.2 +/- 0.5	10.2 +/- 0.5	9.8 +/- 0.5	9.2 +/- 0.5
Density (g/cm ³)	2.5 +/- 0.1	2.5 +/- 0.1	2.45 +/- 0.1	2.4 +/- 0.1
Chemical Solubility	30-80 ug/cm ²	30-80 ug/cm ²	40-90 ug/cm ²	50-100 ug/cm ²
Processing Temp	840-860 C (cryst.) / 920-950 C (press)	840-860 C (cryst.) / 920-950 C (press)	850-880 C (press)	Fully crystallized; ready after milling
Translucency	HT / MT	LT / MO	HT / MT	HT / MT / LT

4. Processing Instructions

A. CAD/CAM Milling Workflow (C01/C02/C04)

Step 1 - Design

Design the restoration in CAD software. Minimum wall thickness: 1.0-1.5 mm (anterior), 1.5-2.0 mm (posterior).

Step 2 - Milling

Mount the block in the CAD/CAM unit. Mill with diamond-coated burs under water cooling.

Step 3 - Crystallization

(C01/C02 only) Place the milled restoration in a porcelain furnace and crystallize at 840-860 C per program. (C04: skip - fully crystallized.)

Step 4 - Finishing

Remove the sprue; finish margins with diamond burs (water spray). Polish with a ceramic polishing kit; ultrasonic clean.

B. Heat-Press Workflow (C01/C02/C03)

Step 1 - Wax-Up & Invest

Fabricate the wax pattern. Min wall: 1.5 mm. Sprue: 2.5-3.5 mm. Invest with phosphate-bonded investment under vacuum.

Step 2 - Burnout

RT -> 250 C (5 C/min, 30 min) -> 450 C (5 C/min, 30 min) -> 850 C (8 C/min, 60 min). Total: approx. 3-4 hrs.

Step 3 - Press

Place ingot + Al₂O₃ plunger into the preheated ring. Press at model-specific temperature, 4-5 bar, 15-25 min hold.

Step 4 - Divest & Finish

Cool slowly. Divest with glass beads (50 um, 2-3 bar). Cut sprues, remove the reaction layer, finish and polish.

C. Bonding Protocol (All Models)

1. Step 1 - Etch the intaglio with 5% HF for 20 seconds; rinse 30 s and neutralize.
2. Step 2 - Apply a silane coupling agent for 60 seconds; air-dry (do not rinse).
3. Step 3 - Apply adhesive per the cement manufacturer instructions.
4. Step 4 - Use adhesive resin cement (dual-cure or light-cure). Do NOT use glass-ionomer or zinc-phosphate cements.

5. Handling & Safety Precautions

- Hydrofluoric acid (HF) is highly corrosive: perform etching in a fume hood; wear goggles/face shield and nitrile gloves. On skin contact, rinse with plenty of water for 15 minutes, apply calcium gluconate gel, and seek medical attention if needed.
- Dust: use local exhaust ventilation during CAD/CAM milling or grinding, and wear a KN95/N95 mask and safety glasses.
- High temperature: wear heat-resistant gloves when handling items from the furnace (>800 C).
- For use by qualified dental technicians/dentists in a professional environment only.

6. Contraindications & Cautions

- Do not use in patients allergic to the product components, cements, or silane coupling agents.
- Use with caution in patients with severe bruxism / excessive occlusal loading without an occlusal guard.
- Not all models suit all indications - see Section 2 (e.g. C03 is not indicated for posterior bridges).
- Use with caution where preparation thickness is insufficient or the patient has poor oral hygiene / cannot attend regular follow-ups.
- Professional use only; not for direct application to patients.

7. Storage & Shelf Life

Store at 5-30 C and relative humidity below 70%. Keep sealed in the original packaging, away from light and moisture. Pre-crystallized blocks (C01/C02): do not freeze, avoid temperature cycling. Shelf life: 3 years from the date of manufacture.

8. Disposal

Dispose of as inert solid waste in accordance with local regulations (EWC 10 12 01). Collect milling dust and water sludge and dispose of as non-hazardous ceramic waste; do not dispose into sewer systems without local authorization.