

YRC Aesthetic Staining Liquid

Operation Instruction

1 Scope and Basis

1.1 Applicable Objects

This document specifies the staining procedures for the dental aesthetic staining liquid used during the fabrication of custom dental prostheses. It applies to the personalized staining of the following objects:

- Ceramic-based restorations: internal staining of zirconia surfaces and incisal / cervical personalized characterization;
- Artificial gingival region: gingival color transition and biomimetic characterization.

2 Terms and Definitions

Term	Definition
Internal Staining (penetration staining)	During the pre-sintered (green) stage, the staining liquid penetrates the porous structure and is fixed by the final sintering, so the color runs through the entire restoration.
Personalized Staining	Zonal shading of the cervical, body, incisal, fissure, and gingival-transition areas according to the patient's natural tooth color, gingival color, and shade-matching results.
Incisal Translucency Treatment	Applying a translucent / low-saturation coloring agent in the incisal region to simulate the translucency and opalescence of natural dental enamel.
Opaque Treatment	Masking of metal substrates, implant abutments, tetracycline-stained, and other dark-colored substrate teeth.

3 Product Information

3.1 Typical Composition

The dental aesthetic staining liquid is mainly divided into four families — O, P, G, V, and TO — comprising 13 colors in total, each with a different composition and application scenario. The opaque liquid kit consists of Opaque Liquid V1 and Shade A.

3.2 Color System and Selection

The staining-liquid color system generally corresponds to the classic Vita shade guide and extends to special shades. Selection should follow the sequence “establish the main shade first, then the personalized shade”:

- Main shade (Vita 16 and 26 shades): determines the overall tone of the restoration and is used for large-area body shading;
- Incisal shade (TO2, TO3): used in the incisal region;
- Special shades (fissure shades such as O1, O2; G-series gingival shades; P-series): used for details such as fissures, cracks, and gingival transitions;
- Opaque liquid: applied to the inner walls of veneers, crowns, etc., to prevent dark substrate teeth from showing through the surface and compromising esthetics;
- Diluent: adjusts saturation and translucency to prevent excessive depth of color at edentulous sites and similar areas.

Color family — composition and application scenario:

Type	Composition	Application Scenario
O (fissure shade)	O1, O2	Internal staining of pre-sintered zirconia frameworks; simulates natural tooth coloration at the fissure sites
O (fissure shade)	O3	Internal staining of pre-sintered zirconia frameworks; simulates enamel white spots and hairline cracks
G (gingival shade)	G1, G2, G3	Internal staining of pre-sintered zirconia frameworks; simulates gingival color at the gingival sites
P (tetracycline shade)	P1, P2, P3	Internal staining of pre-sintered zirconia frameworks; simulates the color of tetracycline-stained teeth
V (transition shade)	V2, V3	Internal staining of pre-sintered zirconia frameworks; simulates enamel translucency and the transition from the main shade to the incisal region; simulates structural shadow
TO (incisal shade)	TO2, TO3	Internal staining of pre-sintered zirconia frameworks; used in the incisal region to simulate incisal translucency
Opaque Liquid Kit	V1 + Shade A	For masking metal substrates, implant abutments, tetracycline-stained, and other dark substrate teeth

4 Standard Operating Procedure

4.1 Staining Precautions

- Close the bottle cap promptly after dispensing the staining liquid to prevent volatilization and moisture absorption that could contaminate the stock solution;
- Dispense a few drops as needed into a disposable mixing palette for use; do not pour any remaining liquid from the palette back into the original bottle;
- Use a small amount per dip — multiple thin layers are preferable to one thick coat; use a separate brush for each shade and clean the brush tip thoroughly before switching colors;
- Work from light to dark and from large areas to details: first the body in the main shade, then the cervical area, then the incisal, and finally the fissures and gingival shades;

4.2 Zirconia Restoration Internal Staining Steps

4.2.1 Opaque Treatment

- Confirm the restoration has been separated, its support struts ground off, and surface dust cleaned;
- If opaque treatment is required, mix Opaque Liquid V1 with the Shade A reagent — 3 drops of V1 and 1 drop of Shade A — in a disposable mixing palette and stir until uniform;
- Using a clean, soft glaze brush, dip into the mixture and brush 1-2 coats onto the inner wall of the crown;
- Note: avoid the incisal area and the cervical margin when brushing.

4.2.2 Staining Treatment

- Incisal brushing: locally brush TO2 and TO3 on the incisal region, 2 coats;
- Edentulous site (if applicable): apply the diluent, 2 coats;
- Main-shade brushing: select the staining liquid matching the target restoration shade, and brush from the cervical area to the middle one-third, 4 coats; (if the immersion method is chosen, after brushing all special shades — i.e., following Step 9 fissure treatment — immerse the restoration in the main-shade staining liquid for 30 seconds)
- Cervical treatment: brush the cervical area with P1, P2, or P3 (selected according to the patient's condition) to intensify the cervical color, 3 coats;
- Crown surface: use O3 to simulate enamel white spots (if present); use P1, P2, or P3 to simulate tetracycline-stained teeth (if present), 3 coats;
- Middle-to-incisal area: use V2 or V3, 3 coats, to create a natural blue-gray translucent gradient; V2 gray may also be brushed at the proximal contacts of splinted crowns to simulate optical attenuation and enhance three-dimensionality;

- Gingival brushing: select G1, G2, or G3 according to the gingival color and brush 4 coats (take care not to brush onto the cervical area of the tooth);
- Fissure treatment: at the fissures, use O1 or O2 staining liquid with a glaze brush, 2 coats, with a minimal amount per dip;
- After internal staining is complete, place the restoration in a drying oven at 90 °C for 30 min, then sinter according to the corresponding zirconia sintering curve.