

MiYO liquid Ceramic: An Update to Current Knowledge – A Review Article

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Abstract:

Aim: This paper aim to represent new approach in esthetics.

Introduction: MiYO Liquid Ceramic System gives the ability to easily create esthetic restorations that rival natural teeth in an ultra-thin layer. MiYO currently works with all zirconia and lithium disilicate materials and is easy to integrate with these materials. Simple and easy way to match shades and get the depth and translucency needed on monolithic or cutback crowns all in one firing. Quick and easy way to change a shade, raise or lower the brightness of crowns. Alternative to Costly Hand-layered Ceramics.

Review: Two MiYO Esthetic System Kits: MiYO Liquid Ceramic for teeth and MiYO Pink Liquid Ceramic gingival system for tissue. Both systems are comprised of MiYO Color; different types of self-glazing colors with varying levels of translucency, each uniquely formulated to replicate natural appearance, such as incisal translucency, mamelons, crack lines, halos, and gingival tissue, and MiYO Structure, used to create depth, vitality, and texture found in natural enamel and tissue, in unprecedented thicknesses of 0.1mm-0.2mm. Achieve highly esthetic monolithic restoration easier and faster. Because traditional stains and glaze cannot achieve depth and translucency.

Conclusion: Completely new and revolutionary colouring/staining system for zirconia or Lithium Disilicate restorations. Uniquely designed to create beautiful & detailed esthetic effects for monolithic restorations.

Keywords: MiYO ceramic, MiYO colours, MiYO esthetic system kit, MiYO structure, monolithic zirconia, translucency.

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INTRODUCTION

We have seen big revolution in our basic material, we have long relied all ceramic materials, have always given us best esthetic possible and zirconia as well has been evolving last several years that share very similar

properties as that of pressed ceramic, it feels like norm of being impossible is now possible with underlying material is evolving so much.^{1,2} Transmitted light passing through one of high generation zirconia this is the basis on which esthetic of zirconia is moving forward.^{1,2} Restoration made with early generation of zirconia

, colors aren't bad, very dense unartificial look. Restorations made with latest generation of zirconia, translucency in depth and light transmission is similar to that of natural tooth.^{1, 2} A balance between strength and esthetics is important for the longevity of the definitive restoration. While monolithic restorations provide the benefit of strength, they have limitations in terms of esthetics. In the typical monolithic procedure, the restoration is fired after the addition of stains and again after glazing. Stains are a set of colors that are added to some areas, built in thickness, to achieve the saturation of color. Glaze is applied when color saturation is achieved, after which another firing cycle is required. Although these procedures improve the appearance of monolithic restorations, the inability to control the surface texture during staining procedures makes it difficult to mimic nature. Another option to improve esthetics is to cut back the monolithic restoration; however, this significantly decreases the overall strength of the final restoration. For these reasons, clinicians and technicians have been limited in their ability to achieve greater esthetics without using traditional ceramic materials overlaying zirconia substructure or lithium disilicate glass-ceramic materials.³

LIQUID CERAMIC SYSTEM

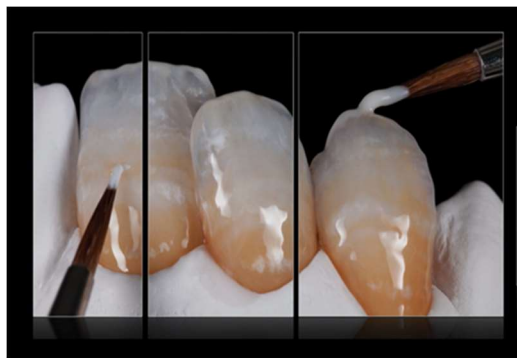


Fig 1 -Application of MIYO liquid ceramic³

Recently an innovative self-glazing liquid ceramic (MiYO, Jensen Dental) was developed as an alternative to layered ceramics to improve the esthetics of monolithic CAD/CAM or pressed-ceramic restorations.³ Based on glazing material, this

liquid ceramic allows tooth shade and shape modifications, accentuated character, and customization while simultaneously enhancing the surface texture of the monolithic restoration. The liquid ceramic creates an ultrathin ceramic layer that eliminates the need for framework cutback. This is an important factor, since the strength of the ceramics will not be modified through cutback techniques.^{3,4} All staining and customization can be done down to 0.1 to 0.2 mm on the ceramic surface. Different color schemes with translucent, semi-translucent, and opaque self-glazing colors were created to improve the color, shade, and shape of zirconia-based and lithium disilicate ceramics (MiYO Liquid Ceramic Color), as follows^{3, 4, 5, 6}:

High Opacity: Used for mamelons (Mamelon Wheat, Mamelon Coral, Mamelon Pumpkin), hypocalcifications (Snow), and pits, fissures, and stains (Fissure).

Medium Opacity: Used for incisal halo (Halo Spring, Halo Autumn) and crack lines (Linen)

Translucent: Used for modification or enhancement of hue (Shade A, B, C, and D), plus other colors for incisal translucency or cervical characterization (Sage, Straw, Lotus, Clementine, Smoke, Storm, Cobalt, and Slate); Lumin and Lumin Plus can raise value without adding opacity

- **Structure^{3,4,5,6}:** Building materials with different translucency adding light-scattering properties to create and modify the restoration's shape, line angles, and surface texture detailing (Window, Enamel, Ghost, Ice, and Blush) Self-glazing liquid ceramic allows modification of a restoration's desired color and value without adding opacity. The final outcome can be visualized before firing, allowing predictability and improved control of the esthetics of a monolithic restoration. The characteristics of traditional ceramic (the ability to layer depth) and stains (the ability to see the outcome prior to firing) have been developed in this liquid ceramic system. Specific self-glazing liquid ceramic colors of different translucencies and opacities were also created to improve the esthetics of gingival tissues (MiYO Pink Liquid Ceramic for Tissue):

- High opacity (Flamingo, Crimson, Plum, Merlot, Sorbet, Salmon, Sable, Thistle).

- High translucency (Midnight, Raspberry, Copper).
- Structure (Orchid, Rouge, Frost)
- Glaze

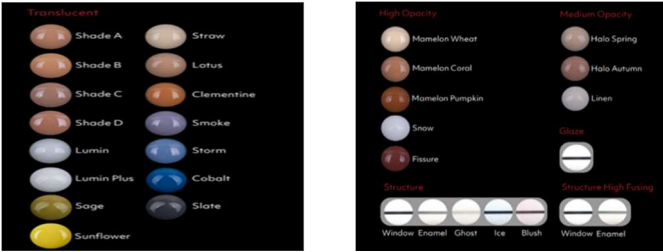


Fig 2 –MIYO system for teeth⁴

3. Miyo benefits^{3, 4}

Reliable results every time
 Easy handling paste materials
 Economical and time saving through fast working processes
 MiYO Color with perfectly adjusted fluorescence and opacity for contrast and depth
 MiYO Structure - unique structure pastes
 Natural refractive index of MiYO Structure is visible on monolithic crowns from a layer thickness of 0.1 mm + High color stability
 Minimal shrinkage
 Detailed aesthetic results by controlling shape, surface and structure before the firing cycle
 Ability to layer all in one application.
 Able to create all kinds of contrast and colour very similar to that of layering ceramic material.
 Dynamic 3D effect without reducing monolithic crowns.
 Create colour and structure as thin as 0.1 - 0.2 mm.
 What you see is what you get

4. MiYO is designed for^{5, 6}

Monolithic Zirconia, Zircon dioxide, PFC (eg. InSync Zr), Press to Zirconia, Lithium Disilicate, PFM (eg. InSync MC)

5. MiYO pink is designed for^{5, 6}

Monolithic Zirconia, Zircon dioxide, PFC (eg. InSync Zr), Lithium Disilicate, PFM (eg. InSync MC)

6. Conventional stains versus MiYO

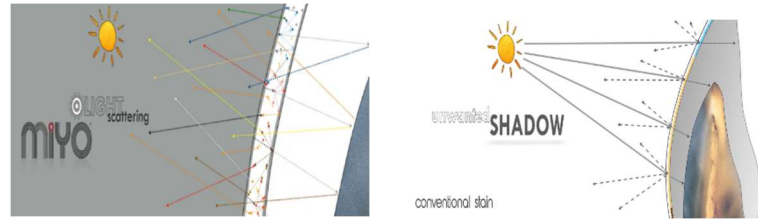


Fig 3 - Picture demonstrating comparison between conventional and miyo liquid ceramic stain³.

True difference between the conventional stain system about 80% pigment and 20 % glaze medium. Pigments are 100 % opaque^{1, 2}. In past typically stains were applied first reason behind pigments are not adhered by itself^{1, 2}. Enough of ceramic is required, so that they grab and hold the pigment and bond it to the surface of the restoration. Highly pacified pigmented eggshell is formed. If there is need to increase saturation of colour, little bit stains are applied, so basically stains are applied first, then stains are set for fire, there is need to do another glaze cycle. Glaze is placed over the stains. Stains create an eggshell of fairly high opaque that does not allow light transmission through the restoration, it blocks light transmission because of this great deal of vitality and translucency is lost. Need to use brighter zirconia, brighter ingot to compensate and balance this effect^{1, 2}.

In miyo, completely opposite ratio 20% pigment and 80% clear ceramic matrix. Miyo colours are self-glazing does not require additional glaze firing over it. Pigment is evenly dispersed within matrix. This allow light to pass through a through so right away getting a light going into a colour band which is that doesn't happen with conventional stain. They are reflected of the surface when light hits the pigment. Light scatter inside the glassy matrix and light bounces off^{3, 4}.

CONCLUSION

Monolithic restorations provide the benefit of strength but are known to fall short in terms of their esthetics. Past outcomes using “white gold” have biased dental professionals against the use of full-contour monolithic restorations because of their esthetic limitations. Materials today are rapidly evolving to manage light transmission similar to ceramic systems. Mimicking nature with full-contour restorations now appears to be possible with the liquid ceramic approach, offering a solution to achieve strength and esthetics without compromising the patient’s situation and esthetic demands. Completely new and revolutionary colouring/staining system for zirconia or Lithium Disilicate restorations. Uniquely designed to create beautiful and detailed esthetic effects for monolithic restorations. With Miyo we can: Achieve stunning results with no cutback or modification, Match the shade guide and get a beautiful glazed finish in one application & firing, alter shades up and down while adding translucency, Raise or lower value while adding translucency, create shape and fine surface detail with Miyo Structure, Bring monolithic to life.

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