

NEON

- ✓ Clinical zirconia block
- ✓ Ultimate aesthetics
- ✓ Fast sinter techn.
- ✓ Close to natural teeth



ZIRCONIA

CERAMICS
MATERIAL

Zirconia Powder Preparation



Zircon

(Magnetic separation,
Electric separation)

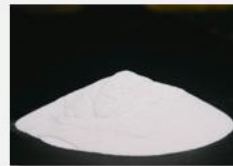


Zircon Sand



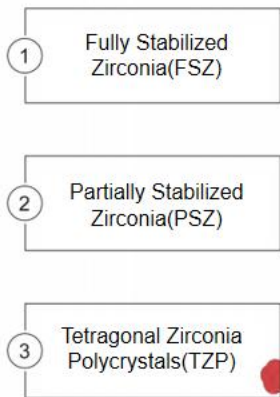
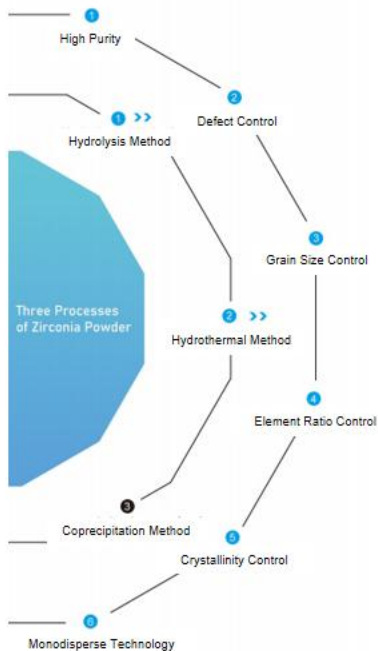
Zirconium
Oxychloride

(Co-precipitation,
Hydrolysis, Hydrothermal)



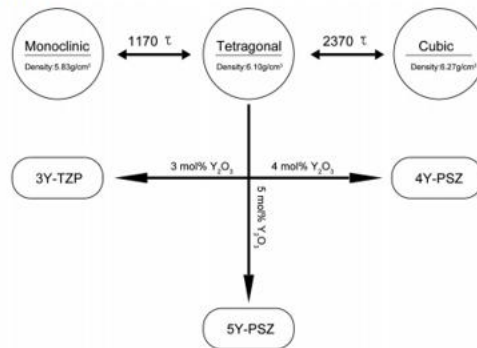
Zirconia

Zirconia Ceramics Classification



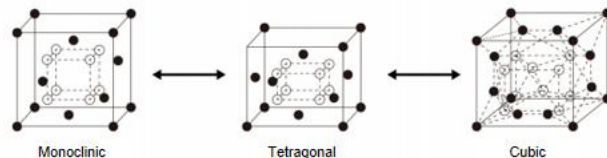
Zirconia Crystal Phase Structure

3Y-TPZ (Tetragonal Zirconia Polycrystals): The grain size is around 0.5 μm ~1.0 μm . Because 3Y-TPZ is a birefringent crystal, it has super high strength and fracture toughness, but the light transmittance is not good enough. They are generally applied in the posterior, bridge and full arch.



4Y-PSZ (Partially Stabilized Zirconia): In 4Y-PSZ, cubic zirconia is the main component, with a content of more than 25% or even 50%. Due to the increased cubic zirconia content, 4Y-PSZ has better light transmittance but lower strength. Generally applied in single crown, inlay, and veneer.

5Y-PSZ (Partially Stabilized Zirconia): It contains more than 70% cubic zirconia. Compared to 4Y-PSZ, 5Y-PSZ has ultra-light transmittance and lower strength. Generally applied anterior crown and veneer.



3D Plus Zirconia

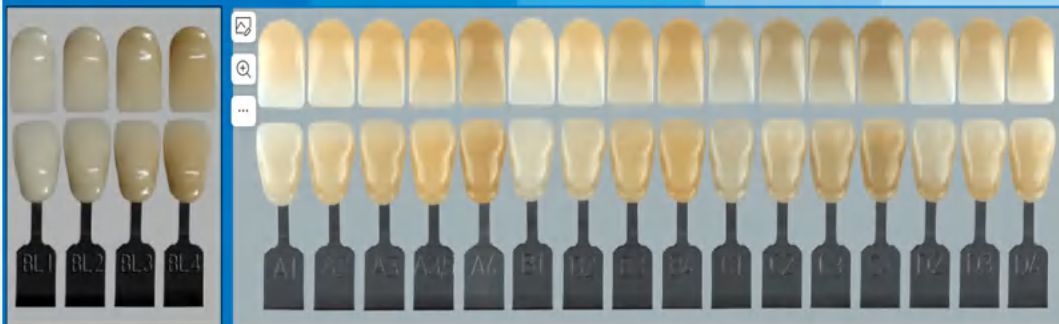


- **Dimensions:** 98mm,95mm,92*75mm
- **Translucency:** 42% to 49%
- **Strength:** 800MPa-1200MPa
- **Height :** 10/12/14/16/18/20/22/25mm
- **Shades:** 16 VITA Classical Shades, 4 Bleach Shades.
- **High quality raw material, good product stability**
- **Nine layers natural shade gradient, excellent durability.**
- **Especially suitable for anterior aesthetic restoration.**

Chemical Composition

$ZrO_2 + HfO_2 + Y_2O_3$	≥99%
Y_2O_3	4.5%-8.0%
Al_2O_3	< 0.15%
Other Oxides	< 0.5%

Shades



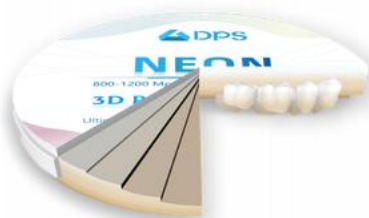
Physical Characteristics

Density after sintering	≥6.05g/cm ³
Fracture Toughness	≥5.0Mpa.m ^{1/2}
Flexural strength after sintering	(Hv10) 1250
Sintering Temperature	1500 °C

Features of 3D Plus Zirconia

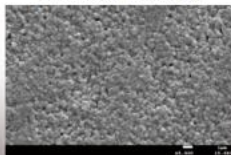
Outstanding Aesthetics

iDental 3D Plus zirconia block from incisal end 49% to cervical end 43% translucency, the incisal end effect is able to ensure the translucency of enamel meanwhile the cervical end low translucency can realize the shading effect. After sintering, the restoration has a realistic appearance, natural color and matches with VITA color shade guide.

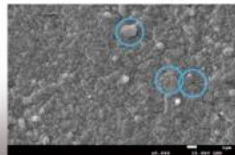


SEM images, 5K magnifications.

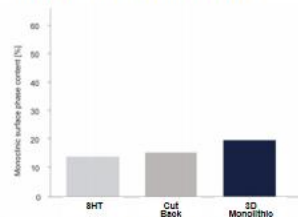
iDental 3D Monolithic Zirconia



Branded competitive Zirconia - highlighted impurity.



Superior Ageing Resistance



Analysis of iDental dental zirconia after the hydrothermal treatment

Unique hydrolysis microstructure and chemical formula of iDental 3D Plus Zirconia can resist aging from cubic phase to monoclinic phase.

Chairside Fast Sintering

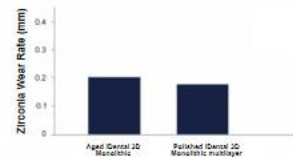
3D Plus Zirconia supports chairside fast sintering while ensuring strength, translucency, and aging effect.



The fast sintering cycle produces the same crystalline structure inside the zirconia as the standard sintering cycle, which means dental lab technicians can fabricate

Low Wear Rate

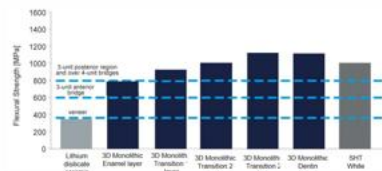
iDental 3D Plus Zirconia has less wear on natural enamel and maintains a good initial shape of the natural enamel surface.



Comparison for the enamel wear between the aged and polished iDental 3D Plus Zirconia

Super High Strength

The bending strength of iDental 3D Plus Zirconia naturally transitions from 800MPa to 1200MPa which can meet the strength of restoration materials for a wide range of indications



Advanced Multi-layer Technology

- High premium 5 layers of overlay, 9 layers of gradient
- Providing both solid crowns and perfect aesthetics
- Color is closer to human natural teeth
- Amazing shrinkage after sintering



25% enamel layer / Translucency 49% / strength 800MPa

12.5% transition layer 1 / Translucency 47% / strength 900MPa

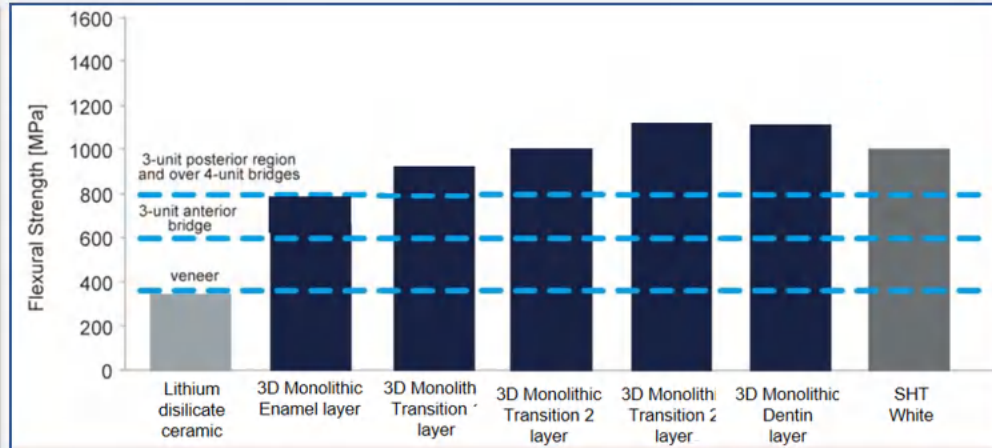
12.5% transition layer 2 / Translucency 45% / strength 1,000MPa

15% transition layer 3 / Translucency 43% / strength 1,100MPa

15% transition layer 3 / Translucency 43% / strength 1,100MPa

Advanced Strength Develop More Aesthetics

- For the normal low strength zirconia, the aesthetics was limited, such circumstance that couldn't enable technicians to use for bridges over 3pcs crowns.
- PRISM 3D Plus multilayer zirconia is amazing, it can bring strength from 800 to 1100MPa which can cover posteriors and anteriors for both crowns and bridges including implant restorations. The high strength layer (dentin layer) of 3D Plus is developed to avoid any areas of weakness when contacting food or human's natural teeth.



Providing ultimate aesthetics & multi-applications



Crowns
(anterior and posterior)



3-4 unit bridges



Inlay



Veneer



Primary Crowns



Onlay



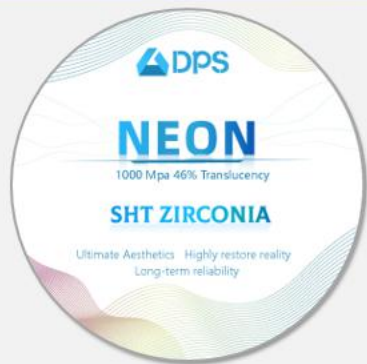
Long-span and curved bridges



Full arch bridges



Bridges on implant



- **Dimensions: 98mm,95mm,92*75mm**
- **Translucency: 46%**
- **Strength: 1000MPa**
- **White Shades:**
- **Height : 10mm/12mm/14mm/16mm/18mm/20mm/22mm/25mm**
- **Super translucent and aesthetic zirconia block**
- **High quality raw material**
- **Preferred choice for demanding aesthetic restoration**

Physical Characteristics

Density after sintering	$\geq 6.08\text{g/cm}^3$
Fracture Toughness	$\geq 5.0\text{Mpa}\cdot\text{m}^{1/2}$
Flexural strength after sintering	(Hv10)1250
Sintering Temperature	1530 °C

Chemical Composition

ZrO ₂ + HfO ₂ + Y ₂ O ₃	$\geq 99\%$
Y ₂ O ₃	7.0%-7.8%
Al ₂ O ₃	< 0.15%
Other Oxides	< 0.15%



- **Dimensions: 98mm,95mm,92 × 75mm**
- **Translucency: 42%**
- **Strength: 1100MPa**
- **Height : 10mm/12mm/14mm/16mm/18mm/20mm/22mm/25mm**
- **High quality raw material**
- **Excellent aesthetic and strength**
- **Seven layers natural shade gradient, the preferred and most common multilayer material used for posterior restoration**

Physical Characteristics

Density after sintering	≥6.09g/cm ³
Fracture Toughness	≥5.0Mpa.m ^{1/2}
Flexural strength after sintering	(Hv10)1250
Sintering Temperature	1530 °C

Chemical Composition

ZrO ₂ + HfO ₂ + Y ₂ O ₃	≥99%
Y ₂ O ₃	4.5%-6.0%
Al ₂ O ₃	< 0.15%
Other Oxides	<0.5%



- **Dimensions: 98mm,95mm,92 × 75mm**
- **Translucency: 37% to 39%**
- **Strength: 1200MPa to 1300MPa**
- **Height : 10mm/12mm/14mm/16mm/18mm/20mm/22mm/25mm**
- **High quality raw material**
- **Good translucent appearance, very natural color, close to real teeth.**
- **With strong compressive strength, patients do not have to worry about implant collapse during use.**

Physical Characteristics

Density after sintering	≥6.09g/cm ³
Fracture Toughness	≥5.0Mpa.m ^{1/2}
Flexural strength after sintering	(Hv10)1250
Sintering Temperature	1530 °C

Chemical Composition

ZrO ₂ + HfO ₂ + Y ₂ O ₃	≥99%
Y ₂ O ₃	4.5%-6.0%
Al ₂ O ₃	< 0.15%
Other Oxides	<0.5%

NEON



NEON

800-1200 Mpa 43%-49% Translucency
3D PLUS ZIRCONIA

Ultimate Aesthetics Highly restore reality
Long-term reliability

NEON

1000 Mpa 46% Translucency
SHT ZIRCONIA

Ultimate Aesthetics Highly restore reality
Long-term reliability

NEON

1100 Mpa 42% Translucency
ST ZIRCONIA

Ultimate Aesthetics Highly restore reality
Long-term reliability

NEON

1200-1300 Mpa 37%-39% Translucency
HT ZIRCONIA

Ultimate Aesthetics Highly restore reality
Long-term reliability



THANK YOU