

cube^{X²} cubic zirconia

THE NEXT EVOLUTION OF ZIRCONIA



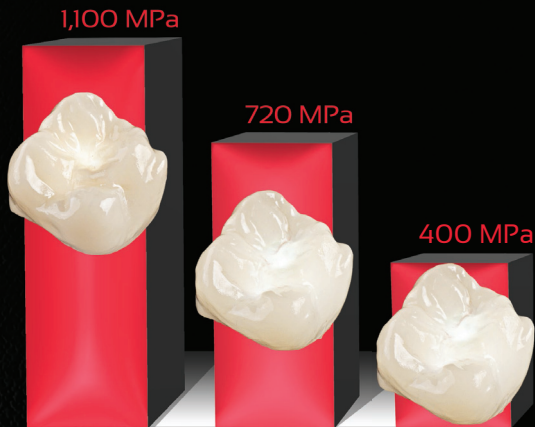
- Translucency of Lithium Disilicate
- Strength of Zirconia
- Conventional Cementation
- Conservative Preparation - 0.8 mm Chamfer or Rounded Shoulder
- Warm, Natural Esthetics
- Flexural Strength of 720 MPa's
- Single Crowns and 3-Unit Bridges in All Tooth Positions

#206 - 314 McLeod Ave • Spruce Grove, AB

Cera
W-Tech
3D DENTAL LAB INC.

Tel: 780.948.0771 • www.ceratechlab.com

cubeX² cubic zirconia



Flexural Strength Testing per ISO 6872 Specification.

The new cubeX2 material combines the known positive properties of zirconia with a significant increase in translucency (49% translucency), making it ideal for anterior and posterior applications up to 3-unit bridgework in all tooth positions. Highly biocompatible, cubeX2 is the ideal restorative material for today's dentistry, offering the translucency of a lithium disilicate while retaining the strength of zirconia (720 MPa's of flexural strength). Dentists no longer have to choose between traditional zirconia and lithium disilicate ...cubeX2 offers strength and beauty!

cubeX² Cubic Zirconia Material Properties

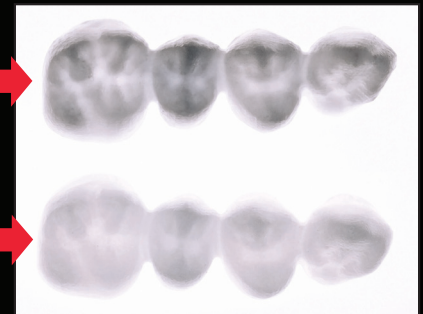
cubeX² is a highly translucent, esthetic cubic zirconia that develops light transmission previously unknown with current zirconium oxides. The cubic/tetragonal microstructure, to which the material owes its characterization as "cubic zirconia," is basically responsible for its extremely high translucency.

Standard Zirconia

30% Translucency

cubeX² Cubic Zirconia

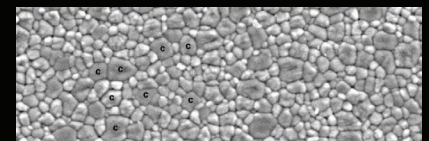
49% Translucency



Cubic Zirconia System

Traditional zirconium varieties familiar and established in the dental field can be grouped together as 3Y-TZP ceramics. By adding 3 mol% yttria oxide, the tetragonal crystal phase is stabilized to create the traditional Yttria stabilized Tetragonal Zirconia Polycrystals formation.

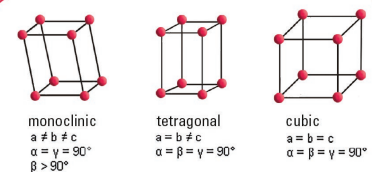
The cubeX² system is based on a 5 mol% yttria oxide, which leads to a stabilization of approximately 53% cubic and 47% tetragonal crystal structure. Thanks to the larger cubic form in volume terms compared to the traditional 3Y-TZP zirconia, transparency is vastly improved with the new cubic zirconia 5Y-TZP molecular structure.



10kV X5,000 5µm

SEM picture: thanks to the larger, cubic crystals in the structure, light dispersion on the grain boundaries is reduced and translucency is increased

Crystal phases of Zirconia



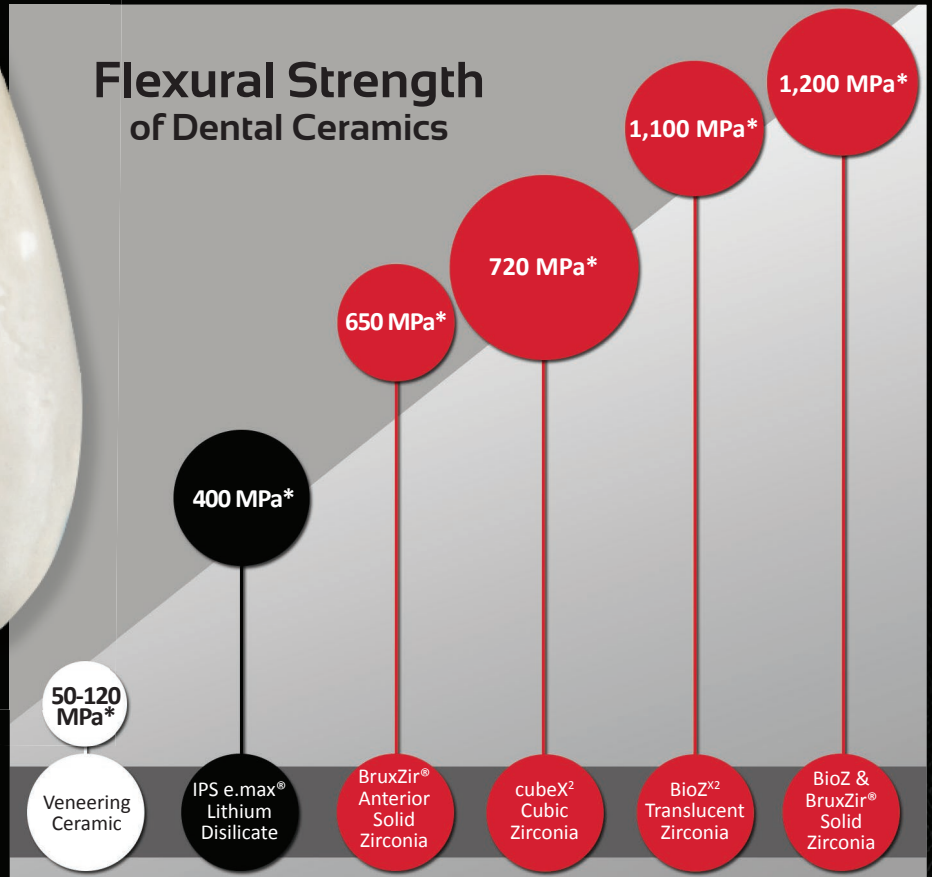
Formation temperature

RT ←→ 1173° ←→ 2370°



cubeX² Cubic Zirconia
Monolithic

Flexural Strength of Dental Ceramics



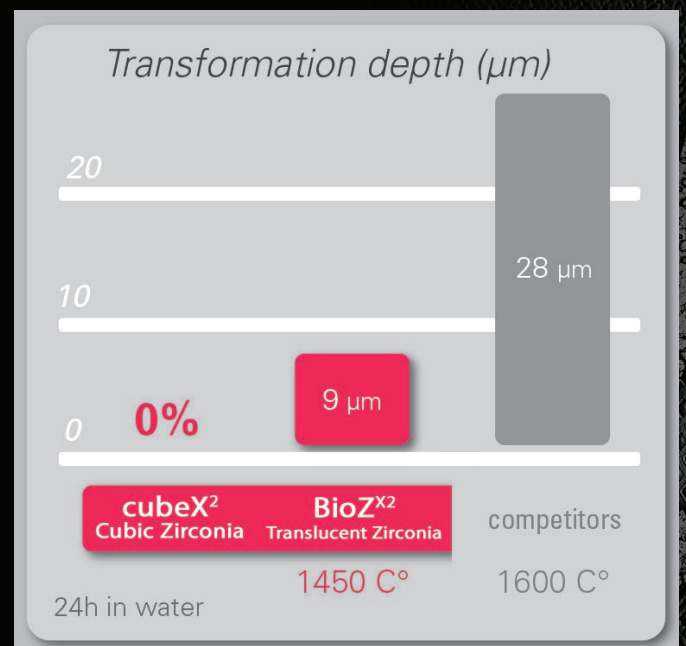
*The stated values may be based on different testing methods. Values are extracted from data sheets and product descriptions from corresponding manufacturers and distributors. All Dental Direkt zirconium oxides were tested by an accredited testing laboratory as follows: cubeX² in 3-point and BioZ/BioZ² in 4-point bending test according to ISO 6872.

Both Beautiful and Safe

Compared to similar high strength ceramics, cubeX² provides an increased esthetic appearance with a biocompatible high performance ceramic featuring high flexural strength and fracture toughness.

Best Resistance to Aging

Most all ceramic dental restorative materials experience a degradation of strength values over time in vivo due to aging/ phase transformation. Due to the enhanced stability of the cubic phase in cubeX² (versus the tetragonal phase found in conventional zirconia products), less phase transformation is observed in vivo, allowing cubeX² to retain much more of its initial strength over time.



Conversion depth in monoclinic after artificial aging according to ISO 13356 in the autoclave

Clinical Indications

cubeX² is indicated for single crowns and 3-unit bridgework in all tooth positions.

Preparation Requirements

cubeX² requires less tooth preparation than is required for lithium disilicate. Ideally, a .8 mm chamfer or rounded shoulder prep is preferred, however a feather-edge margin is acceptable with 1.0 - 1.5 mm occlusal reduction.

Cementation

Recent research has shown that saliva contamination can hinder the bonding of zirconia based products. When a zirconia crown or bridge is tried in the patient's mouth and comes in contact with saliva, the phosphate groups in the saliva bind to the zirconia oxide and cannot be rinsed out with water. Attempting to use phosphoric acid (which is full of phosphate groups) to 'clean out' the saliva only makes the problem worse.

To successfully remove saliva, it is now suggested that after try-in and before priming, the crown should be cleaned with Ivoclean, a zirconia oxide solution from Ivoclar Vivadent. This zirconia oxide solution is placed inside the restoration for 20 seconds and then rinsed out. Due to the large concentration of free zirconia oxide in the Ivoclean, it acts as a sponge and binds to the phosphate groups that were previously bonded to the restoration.

Suggested Cementation Protocol:

1. Try-in zirconia-based restoration
2. Rinse saliva out of restoration with water
3. Place Ivoclean in restoration for 20 seconds, rinse and dry
4. Apply primer and then cement with product of your choice

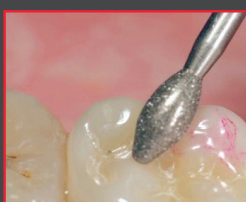
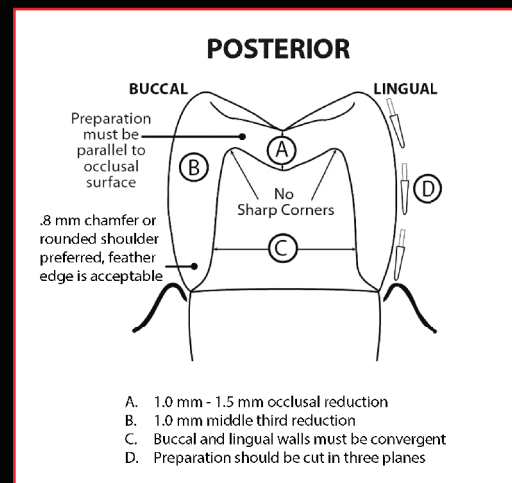
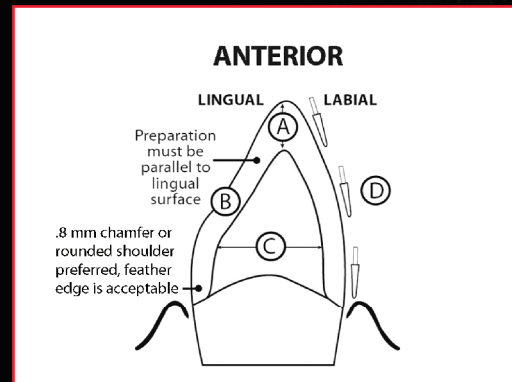
Cementation Recommendations:

- Ceramir[®] Crown & Bridge (Doxa Dental) or a resin-reinforced glass ionomer cement such as RelyX[™] Luting Cement (3M ESPE) or GC Fuji Plus[™] (GC America)
- For short or over-tapered preparations, use a resin cement such as RelyX Unicem (3M ESPE) or Panavia[™] F.2.0 (Kuraray)

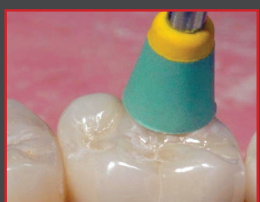
Finishing and Polishing

We recommend the Brasseler USA[®] Dialite[®] ZR Kit for finishing and polishing cubeX² and BioX² zirconia products. This two-step system allows you to quickly achieve maximum surface smoothness, enhancing your restoration's longevity and minimizing wear to opposing dentition.

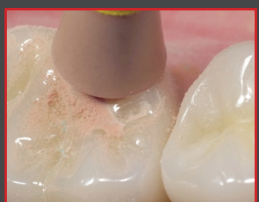
Important: Be sure to use adequate water when adjusting.



Adjustment of occlusion using football-shaped red-band Dialite finishing diamond (8369DF)
Recommended speed: 100K rpm



Dialite ZR green medium polishing cup (W17MZR) for pre-polishing
Recommended speed: 5K-7K rpm



Dialite ZR orange fine polishing cup (W17FZR) for high shine
Recommended speed: 5K rpm



Zirconia crown polished with Dialite ZR

**Cera
Tech**
3D DENTAL LAB INC.

#206 - 314 McLeod Ave
Spruce Grove, AB
Tel: 780.948.0771
www.ceratelab.com