Lineup

KZR-CAD Zr	Color shade	Diameter(Φ) 98.5mm Thickness (t)									
		10mm	12mm	14mm	16mm	18mm	20mm	22mm	25mm	30mm	35mm
SHT	White	—	—	●	—	●	●	—	—	—	—
HT		—	—	●	—	—	●	—	●	—	—
T		—	—	●	●	●	●	●	●	—	—
HT-A1, HT-A2, HT-A3, HT-A3.5	Colored	—	—	●	—	—	●	—	●	—	—
SHT-A1		—	—	●	—	—	●	—	—	—	—
SHT-A2, SHT-A3, SHT-A3.5		—	—	●	—	●	●	—	—	—	—
NANOZR	White	Diameter(Φ) 98.3mm									
		●	●	●	●	●	●	●	●	●	●

Sintering Schedule

<KZR-CAD Zr Sintering Program>

	Heat Rate	Heat Rate	Hold	Cooling
Temperature (℃)	1,000	1,450	1,450	400(in the furnace)
Time (hour)	2	1.5 (4.5)*	2	1.5

* In the case of a single crown to an 8-unit bridge made of T or HT or a single crown to a 3 unit-bridge made of SHT
* Heat rate to 1,450℃ may differ depending on the furnace.

<KZR-CAD NANOZR Sintering Program>

A Sintering Program In the case of 1 ~ 7 unit bridge, sintered by inFire HTC(Sirona)

	Heat Rate	Heat Rate	Hold	Cooling
Temperature (℃)	850	1,450	1,450	1,000
Condition	3 (℃/min)	10 (℃/min)	120 min	8 (℃/min)

B Sintering Program In the case of 8 unit bridge or more or a whole disc, sintered by inFire HTC(Sirona)

	Heat Rate	Heat Rate	Hold	Cooling
Temperature (℃)	850	1,450	1,450	300(in the furnace)
Condition	3 (℃/min)	3 (℃/min)	120 min	3 (℃/min)

【Precaution】

* Sinter with one tray.
* Do not use Sintering Pin in any cases.
* In the case of 1-7 unit bridge, remove from support pins and follow A sintering program on beads.
* However, in the case of sitering a whole disc without removing from support pins, follow B sintering program.
* Or 1-7 unit bridge removed from support pins with a disc can be sintered by B sintering program.
* In the case of 8 unit bridge or longer span or denture floor should be sintered with a whole disc without removing.
* Do not touch a tray until the temperature indicator shows under 100 ℃.

Manufactured by

YAMAKIN CO., LTD.
1090-3 Otani, Kamibun, Kagami-cho,
Konan-shi, Kochi, 781-5451 Japan
http://www.yamakin-global.com

Head Office: 3-7 Sanadayama-cho Tennoji-ku Osaka 543-0015, Japan
Branch Office: Tokyo, Osaka, Sendai, Nagoya, Fukuoka, JAPAN
Factory and R&D: Kochi, JAPAN
P: +81-887-55-0281 F: +81-887-55-0053
E: contact@yamakin-gold.co.jp

CE 0123
INTERNATIONAL20181206

Technical Zirconia

☑ KZR-CAD NANOZR

Esthetic Zirconia

☑ KZR-CAD Zr SHT
☑ KZR-CAD Zr HT
☑ KZR-CAD Zr T

Technical Zirconia

☑ KZR-CAD NANOZR

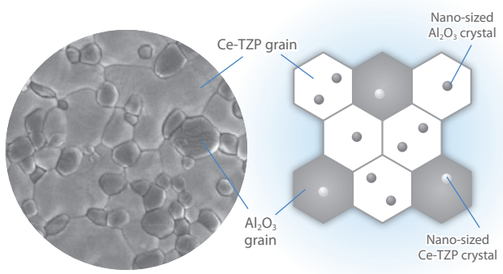
Superior in Fracture Toughness

Unique material properties for maximum safety

NANOZR is a complex structure zirconium oxide/aluminium oxide reinforced with nanocrystals, the physical properties of which are unique. It is much more resilient than comparable dental ceramics. The very high fracture toughness offers the utmost degree of safety. Furthermore, NANOZR is bio-compatible, resistant to aging. It is ideally suitable for crowns and bridges application as well as for telescope structures and superstructures.

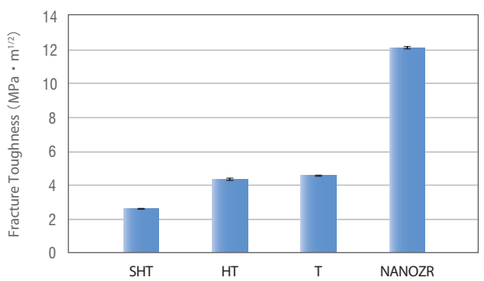
The Microstructure

By integrating Ce-TZP and Al_2O_3 crystals on a scale of a few nanometers (one billionth of a meter) in grains of the other component, the fracture toughness is increased more than twice as much as that of yttria type zirconia.



SEM image of NANOZR　　Image of NANOZR

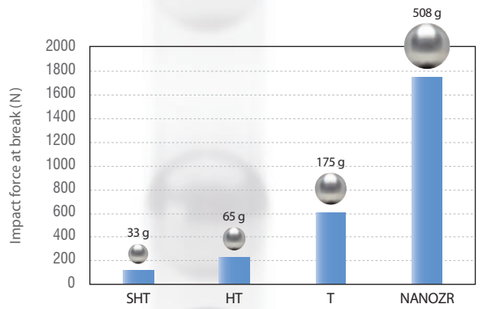
Fracture toughness



Fracture Toughness of Each Kind of Zirconia
(ISO 15732: 2003 (SEPB Method)　Tested by JAPAN FINE CERAMICS CENTER)

Impact resistance

Steel balls, weighing 7 grams to 508 grams, were dropped from a height of 60 centimeters onto 1 mm thick discs made of each kind of Zirconia (SHT, HT, T, and NANOZR) which were centered on a steel plate.
The impact force at breakage of NANOZR was 1740N, and the impact resistance was approximately 2 to 15 times or more that of yttria type zirconia.



Impact resistance of each kind of zirconia

Esthetic Zirconia

☑ KZR-CAD Zr SHT
☑ KZR-CAD Zr HT
☑ KZR-CAD Zr T

Exquisite Esthetic Qualities with High Translucent

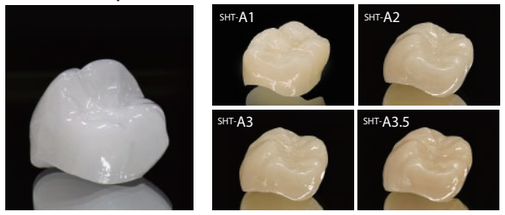
Made in Japan

Y_2O_3 enables high levels of strength and fracture toughness in zirconia, as it stabilizes zirconia crystallization. The raw materials for KZR-CAD Zr are produced by Tosoh Corporation, a Japanese company with a proven record worldwide. This means that KZR-CAD Zr is a purely made-in-Japan product.

SHT (Super High Translucent)

- The highest light transmission in the series.
- Makes it possible to perform restoration utilizing the color of the abutment tooth.
- Suitable for cases requiring high aesthetic quality on anteriors so as to harmonize with natural teeth.

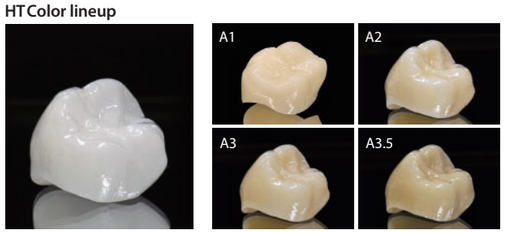
SHT Color lineup



HT (High Translucent)

- Higher translucency than T(Translucent) with well-balanced of strength and translucency.
- Minimizes the working time required for layering and staining.
- Pre-colored shades are available.

HT Color lineup



T (Translucent)

- Suitable for making frameworks on an abutment tooth.
- High strength enables long bridges.

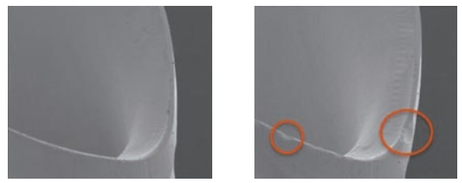
Characteristics (reference value)

	SHT	HT	T	NANOZR
Comparison of light transmission using a pellet of 0.5mm thickness				
Light Transmission (%) *1	51	43	33	0
Flexural Strength (MPa) *2	770	1,080	1,280	1,110
Fracture Toughness (MPa・m$^{1/2}$) *3	2.6	4.3	4.5	12.1

*1 by In-house test (thickness of 1mm)　*2 ISO 6872: 2015 (three-point bending test)
*3 ISO 15732: 2003 (SEPB Method)

High Machining Precision by CIP and Optimal Sintering Technology

KZR-CAD Zr has excellent compatibility thanks to non-directional CIP (Cold Isostatic Pressing) compression molding.
Carefully controlled CIP pressure and optimal sintering prevent fracture and chipping; also, they are designed to make machining precision higher.



Left Image: Optimal sintering under good conditions　　Right Image: Over-sintering

Enlarged Image of Margin Area after Machining