

# **KATANA™ Zirconia**



New High Esthetic Potential for Zirconia in Dental Restorations \*



**UTML** *Ultra Translucent Multi Layered*

**STML** *Super Translucent Multi Layered*

**ML** *Multi Layered* **HT** *High Translucent*

# KATANA™ Zirconia

New High Esthetic Potential for Zirconia Dental Restorations\*  
 New KATANA™ series which feature translucency similar to natural tooth enamel are now available.

KATANA™ Zirconia UTML•STML zirconia discs which feature multi-layered color with higher translucency levels are now available. You can now expect a more natural look with predictable results and save time, even when fabricating esthetic anterior restoration with KATANA™ monolithic zirconia materials.

\*Comparison with our conventional products.

**4 Layer structure**

- Enamel Layer (35%)
- Transition Layer 1 (15%)
- Transition Layer 2 (15%)
- Body (Dentine) Layer (35%)

( ) in% is the thickness of each layer in a disc

**Actual finished surface of disc after sintering**

The original innovative multi-layered technology creates the smooth transition of color gradation.

(Image of gradation)

Restorations are full contour zirconia crowns made from KATANA™ Zirconia UTML\*

\*with external staining



Anterior crown



Laminate veneer

# UTML *Ultra Translucent Multi Layered*

UTML has the most translucency among the KATANA™ Zirconia and is recommend as the most suitable for fabricating anterior crowns or laminate veneers. Two different shade types are available, the Standard shade and Enamel shade for your selection.

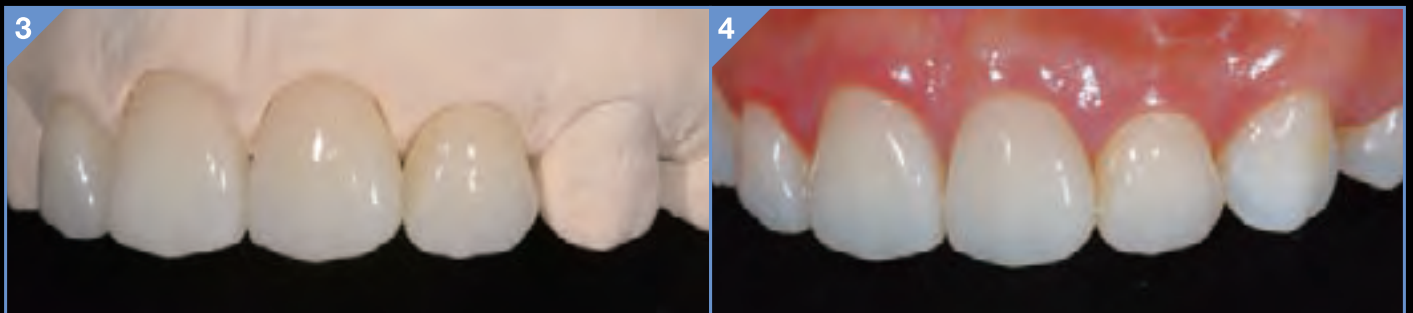
## ■ Concept of color and translucency

<div style="background-color: #4a86e8; color: white; padding: 5px; text-align: center;"> <b>Standard shade (A1~D4)</b> </div> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 5px;"> <div style="background-color: white; padding: 2px; text-align: center; border: 1px solid #ccc;">Translucency</div> <p>High translucency through all the disc layers.</p> <div style="background-color: white; padding: 2px; text-align: center; border: 1px solid #ccc;">Color</div> <p>Color of Shade Guide*</p> </div>	<p>Color and translucency of the layers after sintering (Image of gradation)</p>	<div style="background-color: #4a86e8; color: white; padding: 5px; text-align: center;"> <b>Enamel shade (ENW, EA1, EA2, &amp; EA3)</b> </div> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 5px;"> <div style="background-color: white; padding: 2px; text-align: center; border: 1px solid #ccc;">Translucency</div> <p>High translucency through all the disc layers.</p> <div style="background-color: white; padding: 2px; text-align: center; border: 1px solid #ccc;">Color</div> <p>Reduced chroma from incisal to the middle layer (①part)</p> </div>
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\*VITA Classical Shade Guide

<div style="background-color: #4a86e8; color: white; padding: 5px;"> <b>Example of external stain</b> </div>		<p>Applying external stains more clearly highlights and enhances the translucency. The <b>Enamel Shade</b> version has reduced color intensity in one half of the disk from the incisal edge (①part) so that you can characterize and express color variations with the external stains.</p> <p><b>CERABIEN™ ZR External Stain</b>  <span style="color: blue;">●</span> Blue : Gray = 1 : 1    <span style="color: orange;">●</span> A+, B+, C+, D+, etc.</p>
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The restorations are full contour anterior zirconia crowns made from KATANA™ Zirconia UTML



1. Shade taking
2. Applying the Glaze and the External Stain
3. Checking the restorations on the model.
4. Seating in the mouth

# STML *Super Translucent Multi Layered*

STML has a well-balanced combination of translucency and mechanical properties. This version of KATANA™ has gradations of translucency as well as color, exhibiting a masking effect in the cervical area. Using this series, you can easily obtain the desired shades to accommodate the variety found in prepared tooth conditions of clinical cases.

## ■ Concept of color and translucency

**Standard shade**  
(NW, A1–A4, B1–B3, C1–C3, D2 & D3)

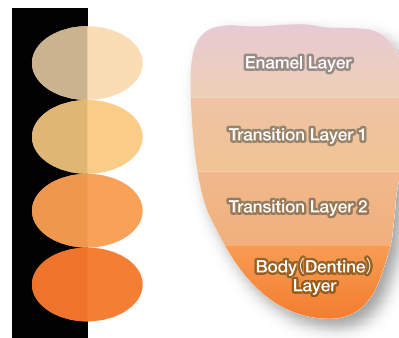
Translucency

Translucency is gradually decreased from the incisal to the cervical region to increase the masking level in the cervical region.

Color

Color of Shade Guide\*

\*NW : NORITAKE Shade Guide  
A1–A4, B1–B3, C1–C3, D2 & D3 : VITA Classical Shade Guide



Color and translucency of the layers after sintering  
(Image of gradation)

**Range of masking level compared to the prepared abutment colors**

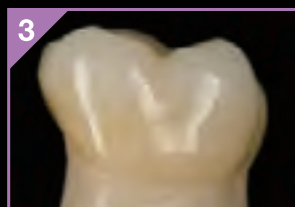
■ **Abutment color examples**

<b>UTML</b>	Light pink
<b>STML</b>	Medium pink
<b>ML/HT</b>	Dark pink

- You can select a shade tab that corresponds to the final desired color.
- Select a shade tab one level brighter than the final color. (It would be necessary to finish with external stains)

The restorations is a full contour posterior zirconia crown made from KATANA™ Zirconia STML\*

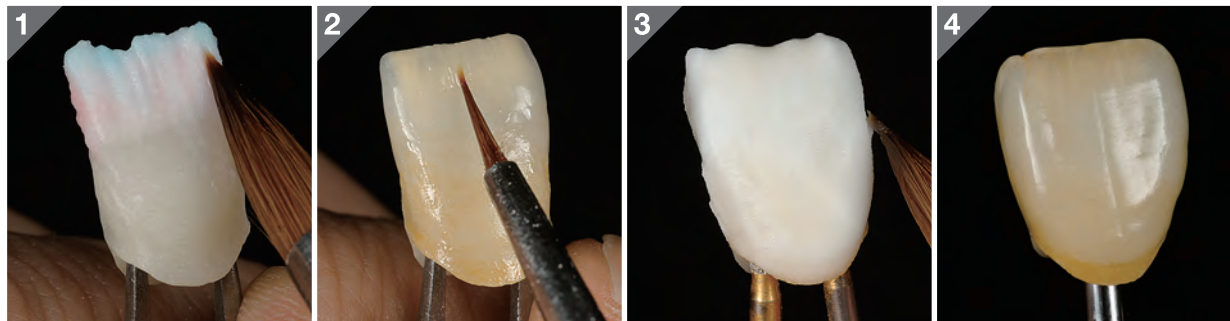
\*with external staining



1. Preparation
  2. Wax up
  3. Checking the restoration on the model.
  4. Seating in the mouth
- (Left : Buccal view, Right:Occlusal view)

## ■ Even higher esthetic restorations are possible.

You can achieve a higher esthetic appearance by layering porcelains and utilizing the internal and/or the external staining technique.



### Recommended materials

#### CERABIEN™ ZR

FL Glaze, VC Glaze, External Stain  
Internal Stain, Luster etc.

#### CZR PRESS LF

LF External Stain,  
LF Internal Stain, LF Luster etc.

\*Do not mix CERABIEN™ ZR and CZR PRESS LF. Do not use a blend of these porcelain powders.

\*Do not use the CZR PRESS (Ingot H, L, EW) with UTML, STML

Restoration fabricated by Otani Dental Clinic Nato Yuasa, RDT

1. Layering only on the incisal area of the frame, while maintaining the minimum thickness, with Body and Enamel porcelain etc.
2. Application of the Internal Stain
3. Layering of Luster porcelain
4. Finished restoration.

## ■ Glaze materials for Full Contour Zirconia (FCZ) Crowns

### >>> FL Glaze

FL Glaze is a colorless and transparent glaze powder containing high fluorescence.

### >>> VC Glaze

VC Glaze is a colored glaze powder used to lower the value of Full Contour Zirconia Crowns. It also contains fluorescence. (The fluorescence of VC Glaze is less intense than FL Glaze.)



\* Composition of CERABIEN™ ZR External Stain.

## Technical Information for Finishing with Glaze



- Smooth the zirconia surface as fine as possible with a silicone diamond point before applying FL &/or VC Glaze.
- Mix glaze powder with **IS Liquid** and apply to the entire zirconia surface. If characterization is necessary, add CERABIEN™ ZR External Stain to FL &/or VC Glaze to obtain your ideal colors and shade. Bake in the same schedule with FL &/or VC Glaze.
- Apply and bake again for a 2nd time as necessary.

\* Sandblasting is strongly recommended before applying the glaze powder.

\* If the zirconia surface is designed to contact the opposing tooth, we recommend polishing the surface as smooth as possible.

## Recipe example for color characterization of the enamel area

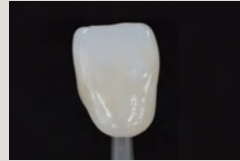
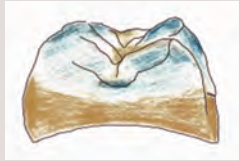


### Grayish Enamel

CERABIEN™ ZR External Stain Gray : VC Glaze : FL Glaze = ( 1 : 6 ) : 7

### Bluish Enamel

CERABIEN™ ZR External Stain Blue : VC Glaze : FL Glaze = ( 1 : 6 ) : 7



- Mix CERABIEN™ ZR External Stain and FL &/or VC Glaze with **IS Liquid**
- Apply VC Glaze evenly over the entire surface and bake
- Apply Glaze Recipe to the Enamel Area and bake

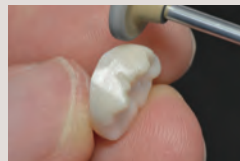
\* Please adjust the mixed ratio and application thickness appropriate to desired levels and intensity.

CERABIEN™ ZR External Stain + CERABIEN™ ZR FL &/or VC Glaze

Dry-out time	Low Temperature	Start Vacuum	Heat Rate	Vacuum Level	Release Vacuum	Hold Time in the air	High Temperature	Cooling time
5 minutes	600°C (1112°F)	600°C (1112°F)	1st Bake 65°C(117°F) 2nd Bake *1 50°C(90°F)	1st Bake 96kPa(72cm/Hg) 2nd Bake *1 —	850°C (1562°F)	1 minute	850°C (1562°F)	4 minutes

\*1 2nd bake is not necessary if it is baked to desired level on 1st bake.

## Technical Information for Finishing by Polishing



Pearl Surface Z is a diamond paste ideal for polishing the zirconia surface to a final finish on Full Contour Zirconia Crowns. Specially developed for KATANATM Zirconia, It is the simplest and fastest way to achieve finished Full Contour Zirconia Crowns.

- Smooth the zirconia surface as fine as possible with a silicone diamond point before using Pearl Surface Z.
- Add the proper amount of Pearl Surface Z to the polishing brush and polish the entire crown surface.

\* Pearl Surface Z can be used for an average of 100 FCZ molar crowns per container (20g).



## Color guide

Line-up of KATANA™ Zirconia

Thickness

UTML, STML, ML	—	14mm	18mm	22mm	—
HT	: 10mm	14mm	18mm	22mm	26mm
PSKD	: 10mm	14mm	18mm	—	—

### UTML



### B1 B2 B3 B4



### C1 C2 C3 C4 D2 D3 D4



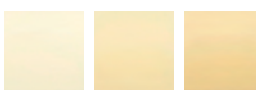
### ENW EA1 EA2 EA3



### STML



### B1 B2 B3



### C1 C2 C3 D2 D3



### ML Multi layered

A White A Light A Dark B Light C Light D Light



### HT High Translucent

HT10 HT12 HT13



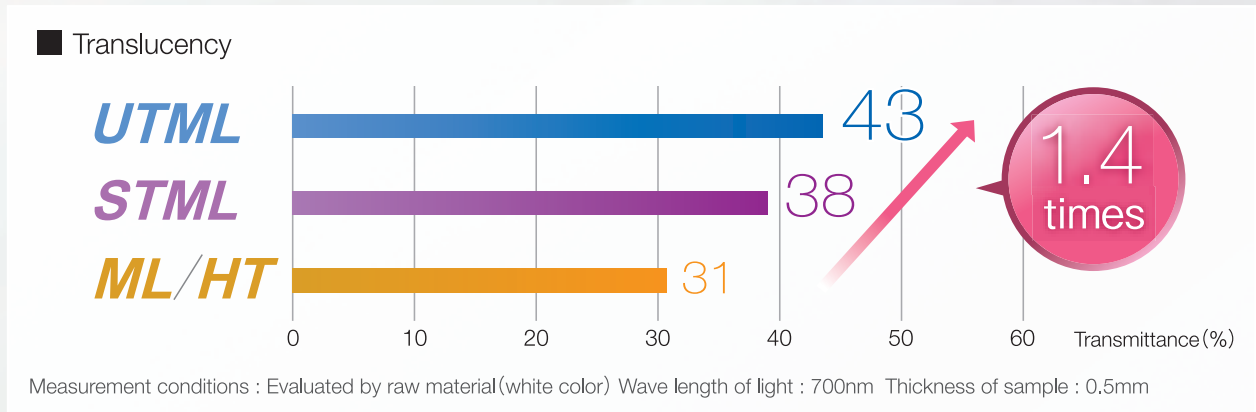
Conventional Zirconia PSKD 10(White color)

### Color selection for CERABIEN™ ZR

HT13	HT12	HT13
EW <sub>00</sub>	EWY	A <sub>2</sub>
EW <sub>0</sub>	NW <sub>0.5</sub>	A <sub>3</sub>
EW	A <sub>1</sub>	NP <sub>2.5</sub>
All Shades (+SB or SB Stain)	NP <sub>1.5</sub>	
	B <sub>1</sub>	
	B <sub>2</sub>	

# The translucency is 1.4 times more than the conventional zirconia products.

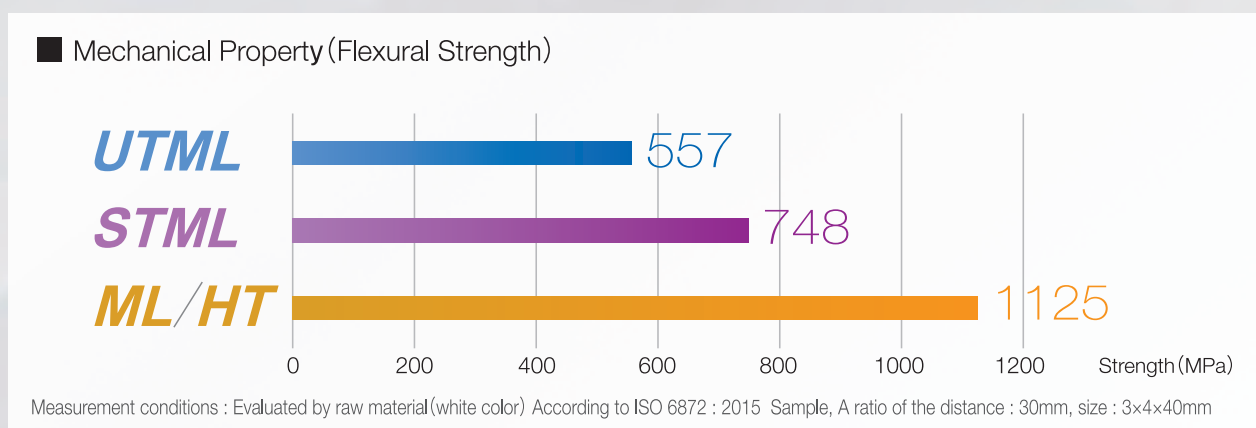
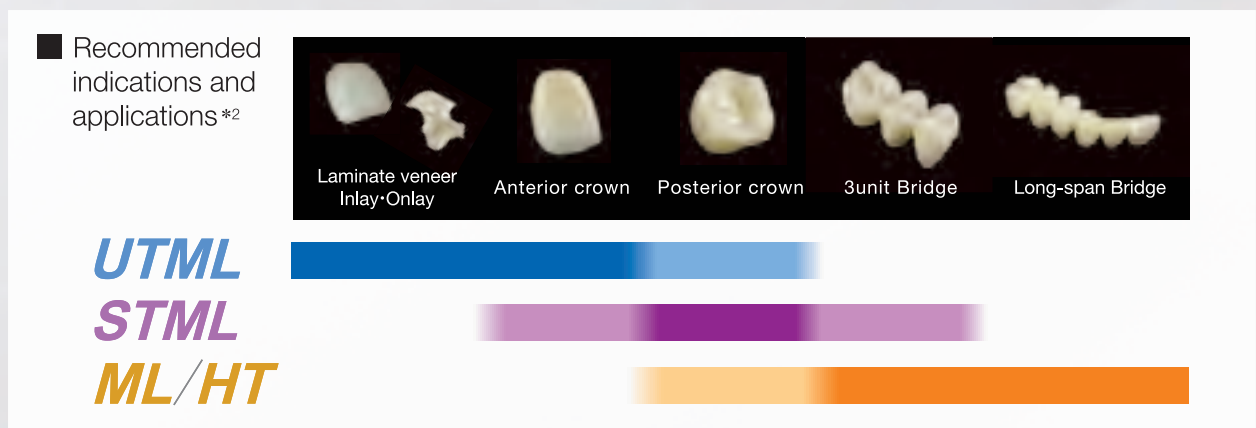
The translucency of zirconia raw materials was increased 1.4 times by our proprietary research and development. Now you can achieve natural life like translucency with KATANA™ monolithic zirconia materials.



Date source: Kuraray Noritake Dental Inc. The numerical value varies according to a condition

## You now have a wide range of clinical case applications for monolithic zirconia with the new additional KATANA™ series.

Selecting the right translucency and mechanical properties, you can fabricate many options, from the esthetic anterior restration to the posterior bridge work.\*1



Date source: Kuraray Noritake Dental Inc. The numerical value varies according to a condition

\*1 UTML, STML, ML : The minimum thickness of zirconia which is necessary in each series is different. Read carefully the instructions prior to using the material.  
 \*2 HT is recommended for the frame-work if you overlay with layered porcelains.

# Design and Milling

Restorations for Anterior and Posterior Crown, Laminate Veneer, Inlay, and Onlay

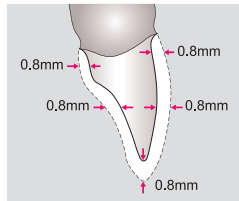
Design the restoration to maintain the minimum wall thickness\* of zirconia as shown. Do not adapt the design to a form that becomes contraindicated.

\*Thickness for zirconia only which dose not include porcelain.

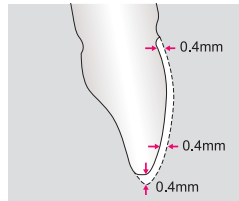
## Minimum Wall Thickness of Zirconia

UTML

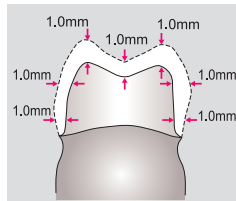
STML



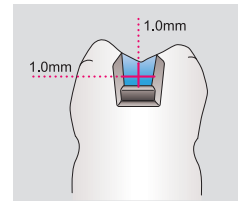
Anterior crown



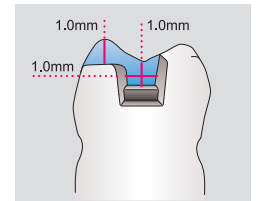
Veneer



Posterior crown



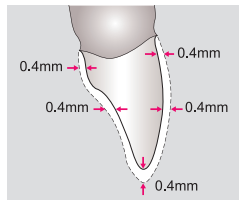
Inlay



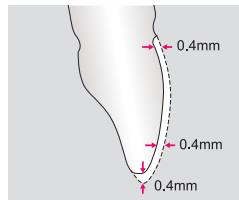
Onlay

\*Please keep 0.8mm in case of porcelain build-up. You can reduce to 0.4mm when finishing with glaze and polish.

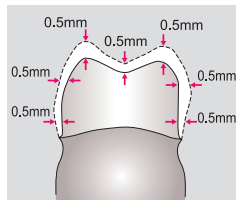
ML/HT



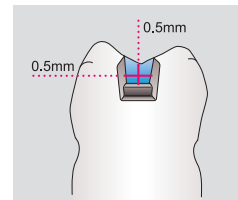
Anterior crown



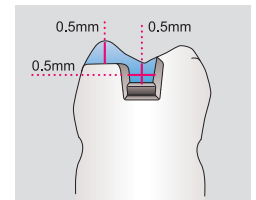
Veneer



Posterior crown

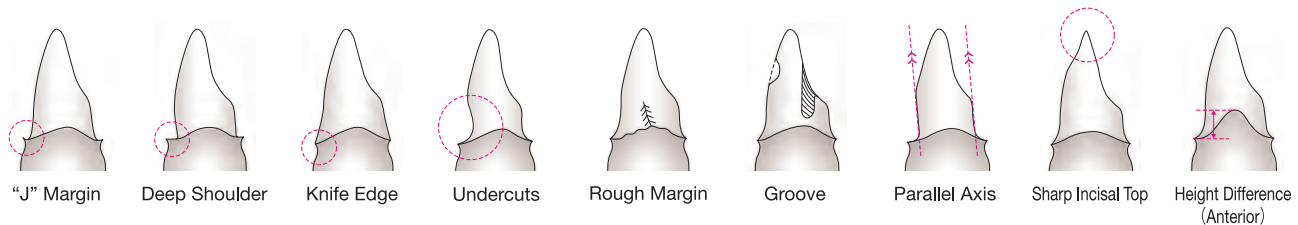


Inlay



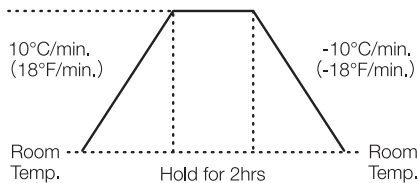
Onlay

## Contraindications



## Sintering Schedule

UTML / STML = 1,550°C (2,822°F) or  
ML / HT = 1,500°C (2,732°F) \*



The sintering recommendations are only a guideline, some adjustments may be required depending on each individual furnace.

PSKD = 1375°C (2507°F) \*

Temperature	Heat Rate	Time
RT~1100°C (2012°F)	9°C (16°F)/min	Approx. 2hr
1100 (2012°F)~1375°C (2507°F)	4.6°C (8.3°F)/min	Holding 2hr
1375 (2507°F)~500°C (932°F)	-4.8°C (8.6°F)/min	3hr
500°C (932°F)~RT	Natural Slow Cooling	

\*High Temperature

### SYMBOLS USED IN A LABEL



MANUFACTURER



BATCH CODE



USE BY



CATALOGUE NUMBER



CONSULT INSTRUCTIONS FOR USE



AUTHORISED REPRESENTATIVE IN THE EUROPEAN COMMUNITY

### Contraindications

If the patient is hypersensitive to zirconia or any other components, this product should not be used.

### EU Authorized Representative

Name : Kuraray Europe GmbH  
Address : Philipp-Reis-Str.4 65795 Hattersheim am Main, Germany

**Kuraray Noritake Dental Inc.**  
300 Higashiyama, Miyoshi-cho  
Miyoshi, Aichi 470-0293, Japan  
<http://www.kuraraynoritake.com>

Read the IFU (Instructions For Use) before the procedure.  
Printed color may not accurately present actual color.