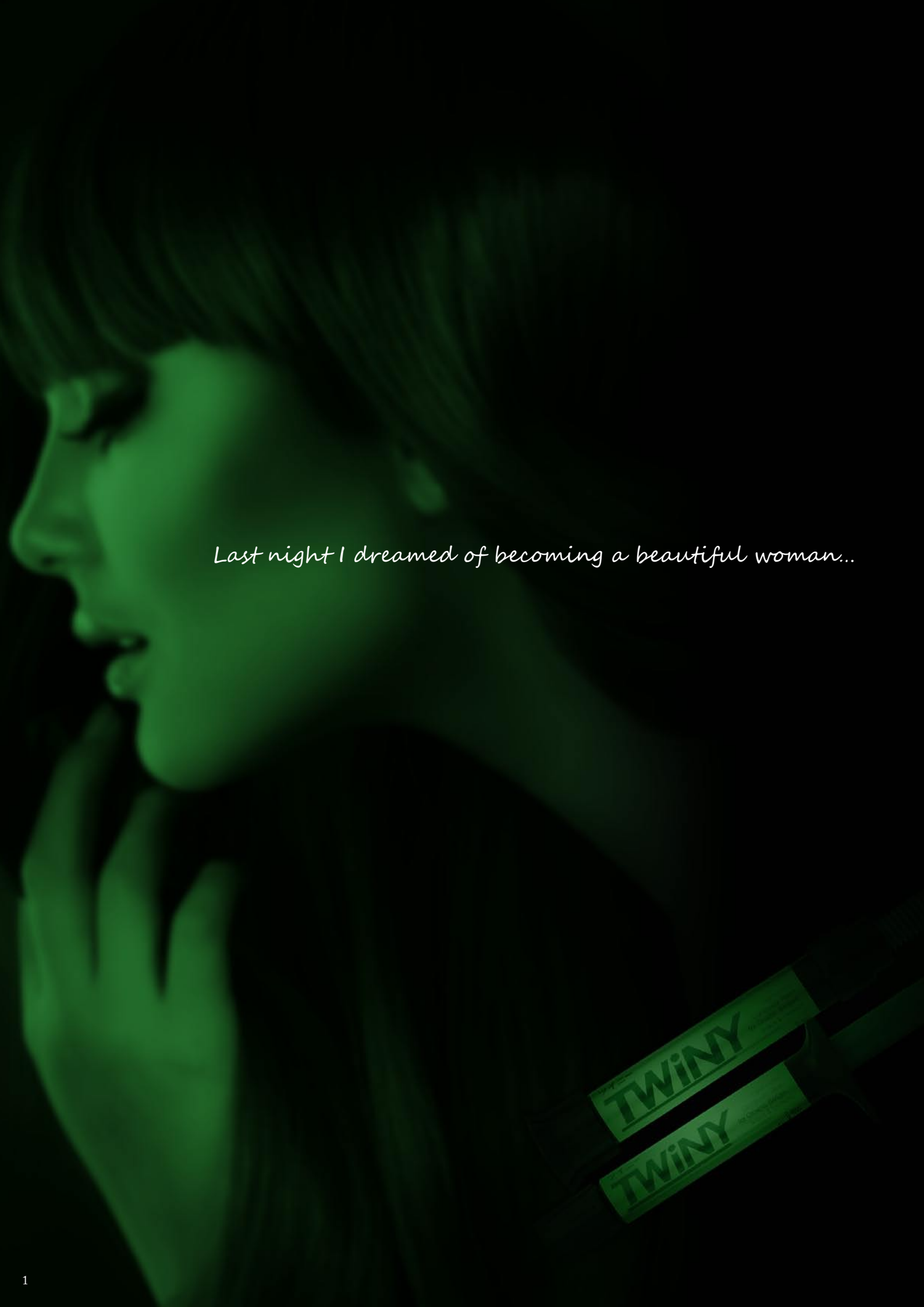


Simply Beautiful and Superb



TWiNY
indirect composite resin



Last night I dreamed of becoming a beautiful woman...

New Material and Technology for Quality Life

~Ceramics Cluster Filler for Innovation~

TWiNY is a light and heat cured indirect composite resin developed and based on Nano-technology. By employing the newly developed specially-shaped inorganic filler, Ceramics Cluster Filler, TWiNY delivers excellent workability, high strength with excellent durability and outstanding aesthetics. TWiNY has been examined based on ISO 10993, Biological Evaluation of Medical Devices, devised by the ISO. In addition, it has been thoroughly examined through various safety tests for biocompatibility at the Department of Oral and Maxillofacial Surgery, Kochi Medical School, Kochi University, Japan.

TWiNY is a truly reliable and highly beneficial material as indirect restorative system for;

- Facing Crowns,
- Jacket Crowns,
- Crowns and Bridges,
- Implant Superstructures,
- Inlays and Onlays,
- Veneers,
- Temporary Crowns and so on.

Index

3	Ceramics Cluster Technology
4	Test Result Data for Physical Properties
5	Reproducing Natural Tooth Appearance
6	TWiNY Flow
7-8	TWiNY Enamel Clear
9	TWiNY Basic Layering Steps
10	Basic Build-up Layering for Jacket Crown
11	Basic Build-up Layering for Inlay and Onlay
12	Polishing TWiNY
13-14	Shade Color Table
15-16	TWiNY Product Line-up
17	Yamakin Brand

Ceramics Cluster Technology

Over recent years, Nano-technology is becoming ever more common as fillers using resin materials become continuously smaller. However, smaller fillers are not always making better performance in terms of strength, workability, aesthetics and compatibility with opposing dentition. It was successfully developed that TWiNY, our in-house developed hybrid composite resin submicron filler primary particles, which combine to form a “Ceramics Cluster Filler” as a secondary particle with a larger surface. (Patented, Japan) TWiNY is mainly composed of Monomer, Ceramics Cluster Fillers and Spherical Nano-fillers. Ceramics Cluster Fillers, surface treated by coupling are mainly filled into the monomer matrix, and Nano-fillers are then filled into the remaining spaces. This improves mechanical properties and high stress resistance. Furthermore, ideal mixing ratio improves the workability of the hybrid composite resin.

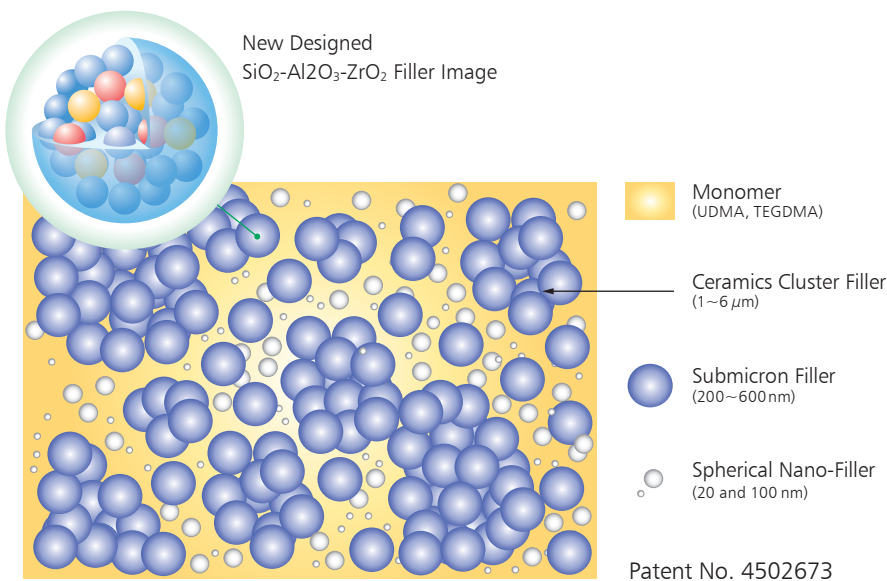
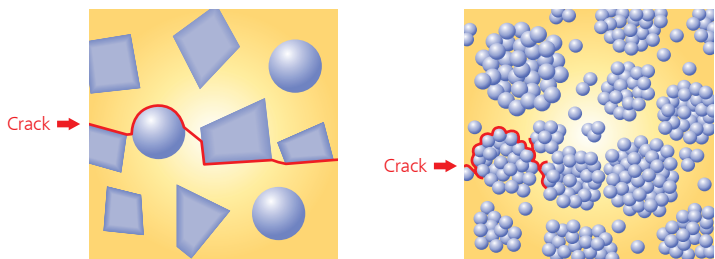


Image of TWiNY material structure

Primary particles of 200~600 nanometers are combined to make secondary particles with various shapes. Ceramics Cluster Fillers are filled into the monomer matrix at a high density and spherical Nano-fillers are also added into remaining space.



Irregular Shaped Fillers
As Ceramics Cluster Fillers have an uneven surface, they work just like retention beads and combine firmly with monomers. This uneven surface also works against cracks, because it scatters stress-strain and enhances wear resistance.

Ceramics Cluster Fillers

Mechanical Properties Table

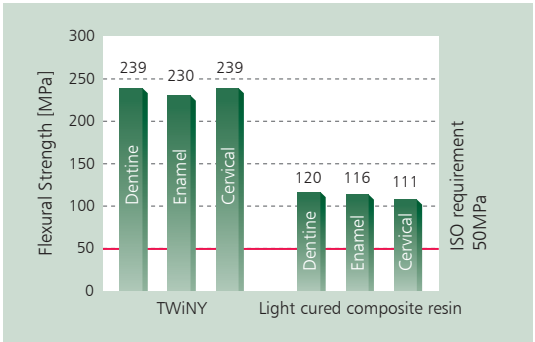
Test Method:ISO 10477

	ISO Requirement	TWiNY	TWiNY Flow
Flexural Strength (MPa)	Not lower than 50 (occlusal surface, not lower than 80)	239	201
Hardness (HV0.2)	Not lower than 18	105	77
Water Sorption (μg/mm³)	Not more than 40	14	22
Solubility (μg/mm³)	Not more than 7.5	0.1	0.1

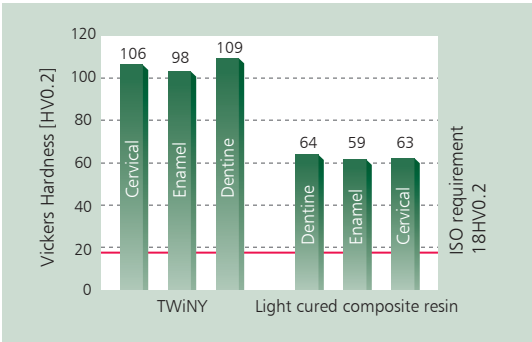
Test Result Data for Physical Properties

These tests evaluate the dental material in terms of how strong and how well it functions. All the test results achieved are far superior to the stipulated required values. This will give dental technicians and clinicians a good picture of what makes TWiNY so superior and superb.

Ceramics Cluster Technology makes it possible to achieve the highest flexural strength, and the flexibility of the material reduces the risk of fracture when high impact is applied, especially in posterior cases.

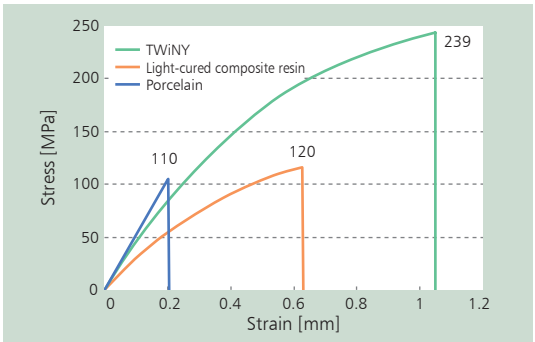


Flexural Strength

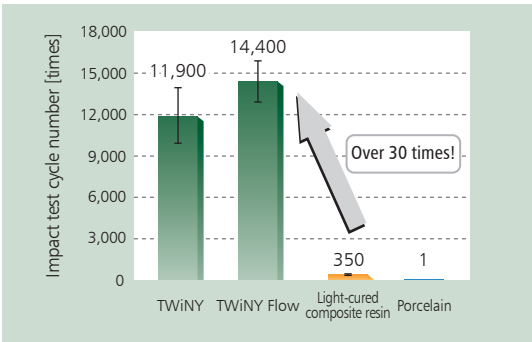


Vickers Hardness

Flexural strength is determined by maximum stress. Breaking energy, which is obtained by maximum stress and strain, is affected by strength and flexibility. Glass and ceramics are very strong materials but will break as soon as they are subjected to a critical level of stress. However, TWiNY exhibits adequate strength even under such conditions, which means that the flexibility of TWiNY reduces risks of fracture when high impact is applied, especially in posterior cases.

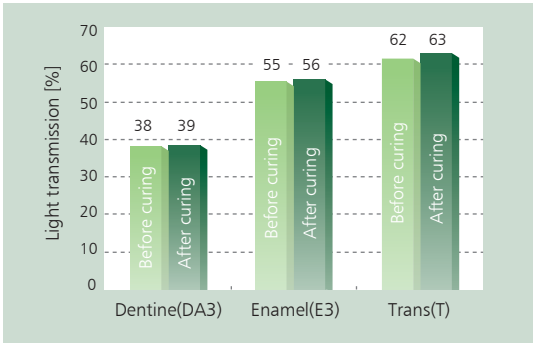


Breaking Energy (Stress-Strain Curve)

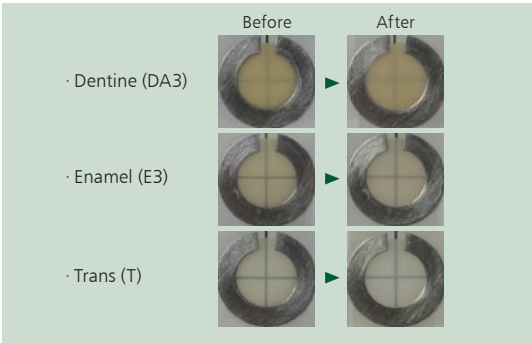


Impact Resistance

Change in light transmission before and after curing is very small, which makes it easier for technicians to layer.



Change in Light Transmission Before and After Curing (0.8 mm thickness)



Pictures of Pellets Before and After Curing (0.8 mm thick)

Reproducing Natural Tooth Appearance

Variety of color shades enables us reproduce natural tooth color

TWiNY is excellent in its physical properties; at the same time, it is highly esthetic product, enabling technicians to demonstrate their talents to full advantage. Whiter teeth are seen as desirable around the world today. Everybody seeks whiter color tone than the original natural teeth color. We have a wide range of white shade colors for aesthetic practice treatment. Gum shades are very useful for implant superstructure. Gum Shade is a characterizing item for reproducing gingival color or expressing the transparency of gingival area and discolored gum. Internal-use Gum Stain products for blood vessels and other expressions are also available.



Clinical Case: Yamakita Dental Clinic 7 ⑥ 5

Gum Shades

	G1	G2	G3	G4	G5	G6	G7	G Or
Gum Opaque								
	OG 1	OG 2	OG 3	OG 4	OG 5	OG 6	OG 7	OG Or
Gum								
	G1	G2	G3	G4	G5	G6	G7	G Or
Gum Modifier								
	GM Gray	GM Trans						

Whitening Shades

	W0	W1	W2	W3
Opaque				
	OW1	OW2	OW3	
Dentine				
	DW0	DW1	DW2	DW3
Enamel				
	E0	E1		

Gum Stain

G Dark Red	G Red	G Milky	G Violet	
G D R	G Red	G Mly	G Vlt	

Outstanding Workability

Optimal consistency for shape preservation of internal dentine structure

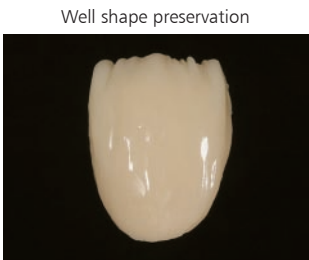
Consistency is important factor for workability of body resin and shape preservation of internal dentine structure. Especially, internal structures such as the dentine core require optimal consistency to keep form. TWiNY exhibits such good shape preservation that the dentine edges even of bridges or connected teeth can maintain shape during working. Technicians can work stress-free, as TWiNY paste does not stick to the spatula.



Pressuring



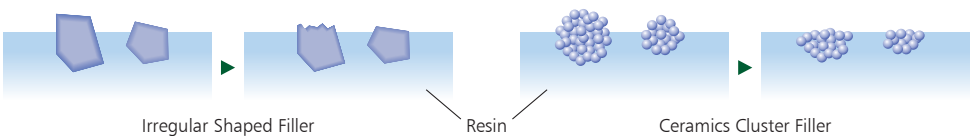
After pressure



Well shape preservation
This is the shape, 15min. after body resin was applied.

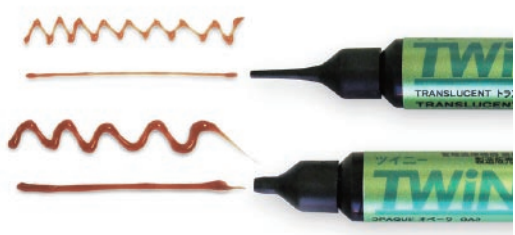
Great Polishability

General irregular shaped fillers are difficult to polish because the remaining resin is softer than the fillers. So, as the dimension of filler particles gets bigger, it becomes more difficult to polish. However, TWiNY's ceramics cluster fillers are grape-like in shape, consisting of smaller fillers, which makes them easier to polish than other irregularly-shaped fillers of the same dimensions.

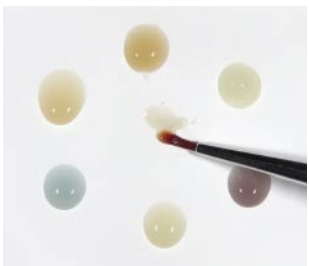


TWiNY Flow

TWiNY Flow is a flowable type composite resin which is not only for internal use but can also be used for the posteriors. Even though it is a flowable type, it exhibits 200MPa flexural strength and high impact resistance. This flowable type is designed in the same color tones as basic TWiNY products. There are four basic shades for Cervical, five Effect shades for characterization and Transparent layering. There are also eight Translucent shades and seven Gum shades for color adjustment. Although TWiNY Flow has optimal flowability, the consistency is optimally set so as to avoid unnecessary dripping. As the nozzle is designed with a 0.7mm opening, it is suitable for direct application. This property makes it possible to express delicate color tones for reproducing natural tooth appearance.



Upper: TWiNY Flow nozzle Lower: Opaque nozzle



TWiNY Flow Application Examples

TWiNY Flow is useful for the cases listed below. However, since this product was mainly designed for color tone adjustment, please use TWiNY Opaque, Dentine and Enamel for basic applications.

Cervical

CA1 Flow
Cervical

Inlay Cavity

CA1 Flow
Inlay cavity bottom

Pit and Fissure

AM Flow
Orange Flow
Color adjustment of pit and fissure

Cusp Marginal Area

WE Flow
CT2 Flow
Color adjustment of cusp marginal area

White Band

WE Flow
White Band Application for Facing Crown

Mamelon Structure

TGlass Flow, T Flow
Transparency expressions of mamelon structures

Gum

G1 Flow
G5, 7 Flow
Color adjustment of gingival area

Other Cases

DA3 Flow
E3 Flow
Repairing air bubbles
Pouring in pontic area
T Flow etc

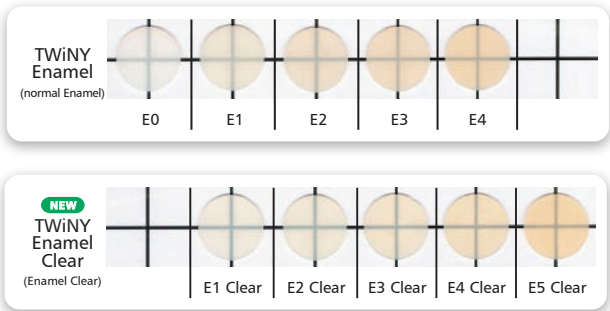
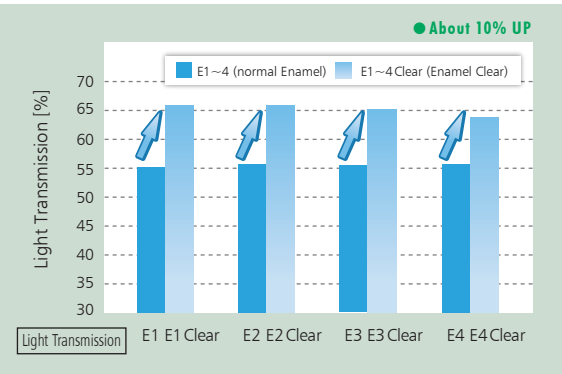
TWiNY Enamel Clear

Enamel Clear and T Glass Clear, which achieve high transparency, have been added to the TWiNY lineup. A deeper color tone and sense of depth can be reproduced by making use of the way in which the product works on anteriors and posteriors. T Glass Clear is now available in two types, Paste and Flow.



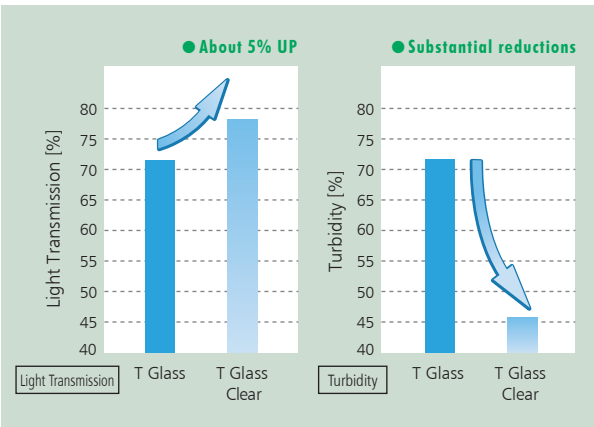
Enamel Clear

While preserving the same physical properties as normal enamel, Enamel Clear achieves an approximately 10% higher Light Transmission rate. We have expanded the range of color tones reproduced, so you are strongly encouraged to try this product out.

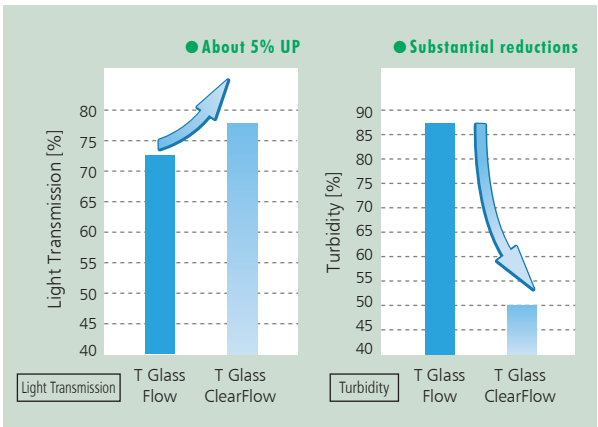


T Glass Clear

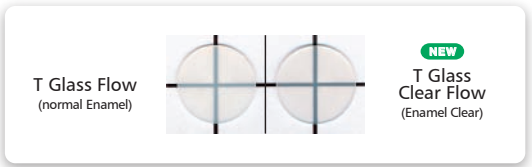
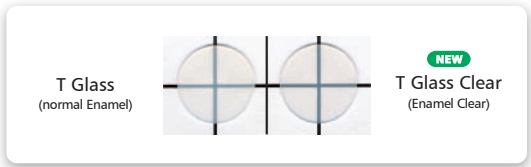
T Glass Clear achieves the highest transparency rate of all Yamakin's resin products. With T Glass Clear Flow, you can expect substantially fewer air bubbles.



Comparison of Light Transmission Rate and Turbidity of T Glass and T Glass Clear

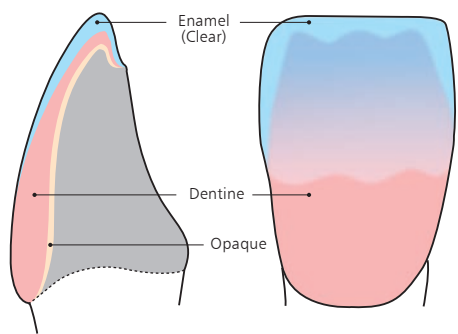


Comparison of Light Transmission Rate and Turbidity of T GlassFlow and T Glass ClearFlow

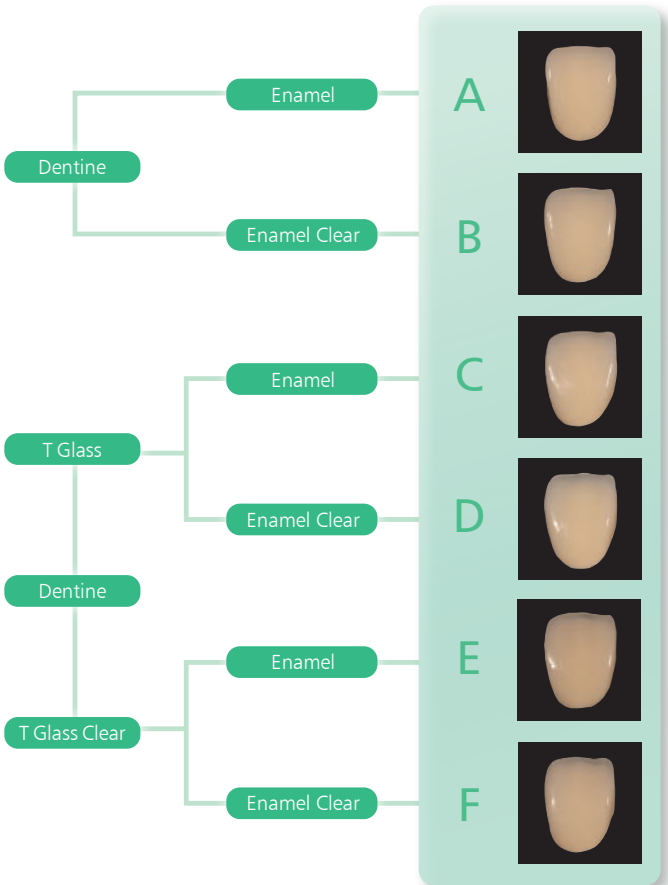
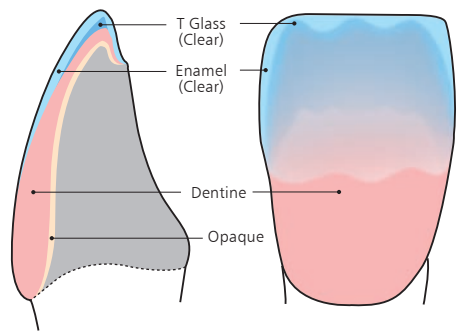


How to Build-up Enamel and T Glass Clear

2 layers application



Building-up with T Glass layers

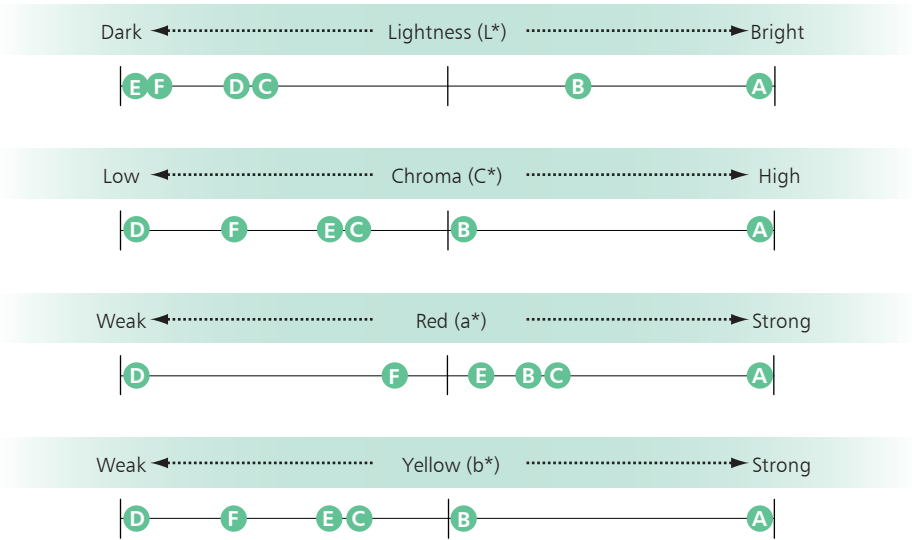


*Sample pieces, A to F are all A3 shade.

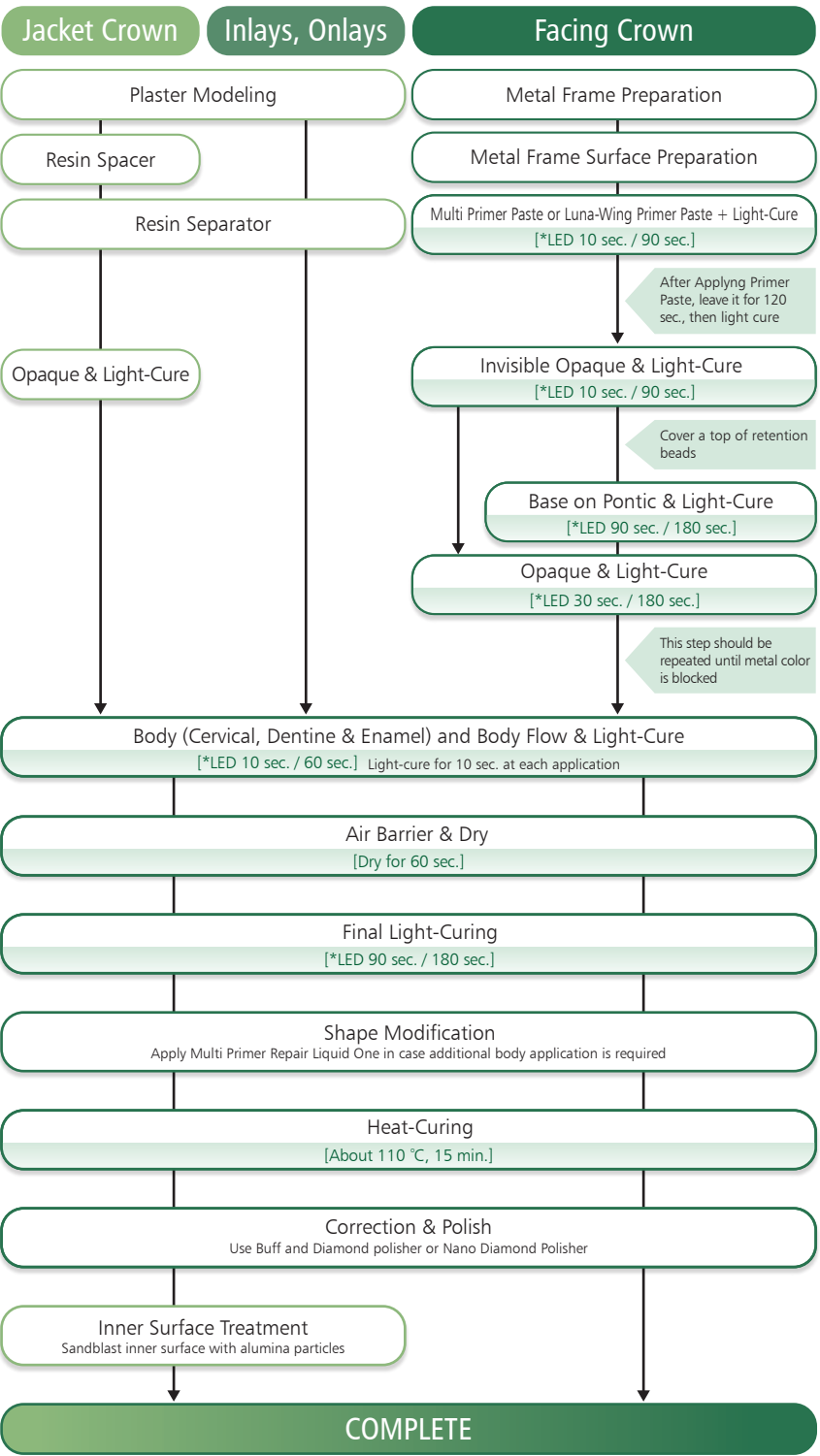
L*a*b* Color System

Colorimetry was measured for facing crowns A to F; the data is presented below. Resin thickness: approx. 0.8 mm at center of tooth crown. Note: Data values may vary slightly depending on thickness of resin.

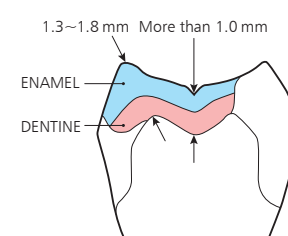
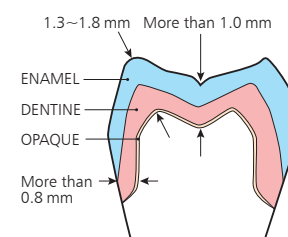
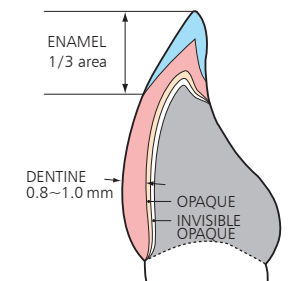
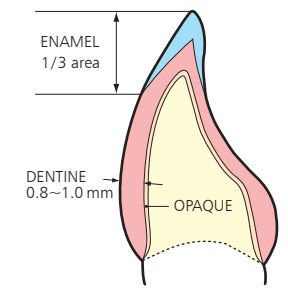
Transparency will be heightened and deeper color tone can be expressed by using the Clear Type series.



TWiNY Basic Layering Steps



Basic Layering Technique



Basic Build-up Layering for Jacket Crown

*Explanation of Light Cure Time shown below: 180(*30) sec. means that 180 seconds for general light curing machine and 30 seconds for LED CURE Master.

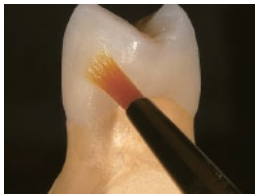
1. Resin Spacer Application

Make a plaster model in accordance with normal practice. Apply TWiNY Resin Spacer on surface, except margin area, and dry.



10. Additional Layering Preparation after Corrections to Shape

In cases where additional layering after correcting the shape is needed, apply Multi Primer Repair Liquid One thinly with a brush on grained corrected surface and leave it for about 60 sec. to dry.



2. Resin Separator Application

For easier removal of jacket crown mould, apply TWiNY Resin Separator thinly on margin area, and dry.



11. Additional Build-up Layering

Apply body resin such as Dentine or Enamel correspondingly and light cure. Apply TWiNY Air Barrier on the additional layering area, then light cure for about 180(*90) sec. as a final curing. Again correct and adjust the shape to finish.



3. Opaque Application and Light Curing

Apply Opaque with a flat brush and light cure for about 180(*30) sec. If metal color is still seen, repeat this step until the metal color is completely concealed.



12. Heat Curing

Remove the jacket crown from the plaster model and heat cure it at about 110°C for about 15 minutes using a heat curing machine.



4. Cervical (Opaque Dentine) Application and Light Curing

Apply Cervical or Opaque Dentine starting from the neck to the central area and applying progressively thinner, taking subsequent color gradation into consideration. Light cure for about 60(*10) sec.



13. Finishing

Remove any scars with paper cone and silicone point to make the surface smooth.



5. Dentine Application and Light Curing

Apply Dentine to form the required dentine core shape and light cure for about 60(*10) sec. Using Body Resin Flow makes it easier to layer cervical area and cavity bottom.



14. Glazing

Polish for glazing by using brush or fabric buff with C&B Diamond Polisher or C&B Nano Diamond Polisher.



6. Enamel Application and Light Curing

Apply Enamel to form the required crown shape and light cure for about 60(*10) sec.



15. Internal Treatment to Finish

Finally, sand-blast (about 0.1 ~ 0.2 MPa) the inside of the jacket crown using alumina powder (about 50 μm), then use steam cleaner or ultrasonic cleaner to wash, and then dry.



7. Translucent Application and Light Curing

In cases where Translucent is required, apply Translucent and light cure for about 60(*10) sec. Using Body Resin Flow can avoid entrapping of air and makes it easier to create delicate color tones and shaping.



8. Final Light Curing

After final layering, apply TWiNY Resin Air Barrier as thinly as possible to avoid immature curing and leave it for about 60 sec. to dry. Then light cure it for about 180(*90) sec. as a final light curing. If Air Barrier is applied thickly, it is difficult to dry. The brush used to apply Air Barrier should be washed with water after use.



16. Completion



9. Corrections to Shape

Correct the shape using a carborundum or diamond point.



Curing Time for Luna-Wing and TWiNY

	LED CURE Master	Other General Light Curing Machines
Invisible Opaque	10 sec.	90 sec.
Opaque	30 sec.	180 sec.
Body & Body Flow (Dentine, Enamel, etc)	Base 90 sec. Others 10 sec.	180 sec. 60 sec.
Stain	10 sec.	60 sec.
Final Light Curing	90 sec.	180 sec.

For shorter working time
LED CURE Master



LED light cure apparatus



Basic Build-up Layering for Inlay and Onlay

1. Preparation for Layering

Make a plaster model in accordance with normal practice.
If there are under-cut spaces in the cavity, block them out using TWiNY Resin Spacer.



2. Resin Separator Application

Apply C&B Resin Separator in the cavity and dry.



3. Dentine Application and Light Curing

Apply Dentine from the cavity bottom and light cure for about 60(*10) sec. In case the abutment color is required to be concealed, or light goes through unnecessarily, apply Opaque or Opaque Dentine at the bottom of the cavity.
Using Body Resin Flow makes it easier to layer cervical area and cavity bottom.



4. Cervical Translucent* Application and Light Curing

Apply Cervical Translucent* at the occlusal surface of the cavity and light cure for about 60(*10) sec.
* CT1, CT2, CT3 and CT4



5. Enamel Application and Light Curing

Apply Enamel to form the required crown shape and light cure for about 60(*10) sec. Using Body Resin Flow can avoid entrapping of air and makes it easier to create delicate color tones and shaping.



6. Final Light Curing

After final layering, apply TWiNY Resin Air Barrier as thinly as possible to avoid immature curing and leave it for about 60 sec. to dry. Then light cure it for about 180(*90) sec. as a final light curing. If Air Barrier is applied thickly, it is difficult to dry. The brush used for Air Barrier should be washed with water.



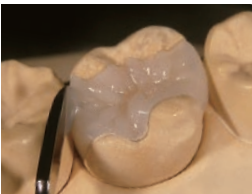
7. Corrections to Shape

Correct the shape using a carborundum or diamond point.



8. Additional Layering Preparation after Corrections to Shape

In cases where additional layering after correcting the shape is needed, apply Multi Primer Repair Liquid One thinly with a brush on grained corrected surface and leave it for about 60 sec. to dry. Apply body resin such as Dentine or Enamel correspondingly and light cure. Apply TWiNY Air Barrier on the additional layering area, then light cure for about 180(*90) sec. as a final curing. Again correct and adjust the shape to finish.



9. Heat Curing

Remove Inlay or Onlay from the plaster model and heat cure it at about 110°C for about 15 minutes using a heat curing machine.



10. Finishing

Remove any scars with paper cone and silicone point to make the surface smooth. In cases where color tone adjustment is required, use Stain or Effect.
* If Stain is used, Translucent or T Glass should be used to cover Stain area.



11. Glazing

Polish for glazing by using brush or fabric buff with C&B Diamond Polisher or C&B Nano Diamond Polisher.



12. Internal Treatment to Finish

Finally, sand-blast (about 0.1 ~ 0.2 Mpa) the inside of the jacket crown using alumina powder (about 50µm), then use steam cleaner or ultrasonic cleaner to wash, and then dry.



13. Completion



Polishing TWiNY

Movie Clip of Polishing TWiNY
<http://www.yamakin-global.com/support/twiny.html>

Diamond Polishers

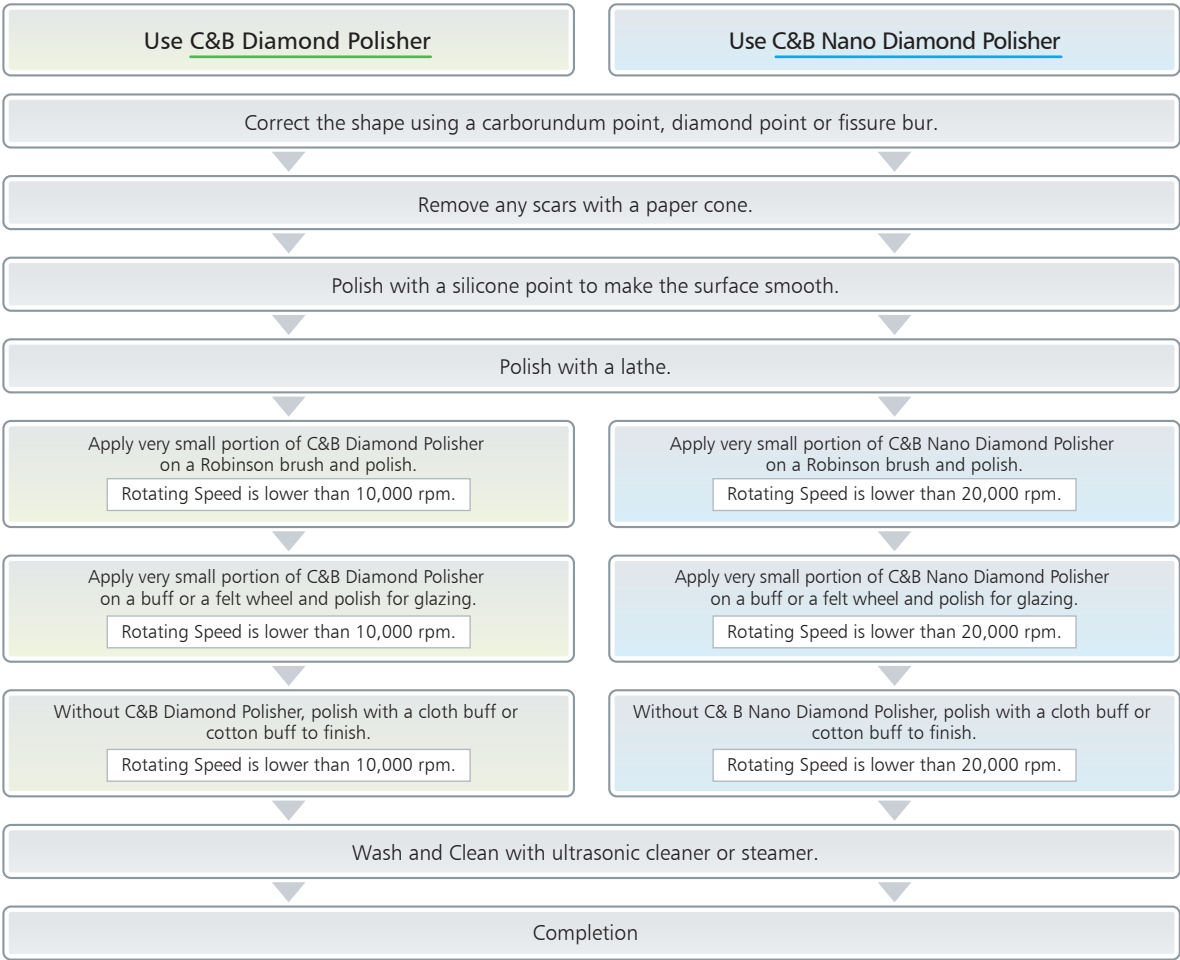
•C&B Diamond Polisher

C&B Diamond Polisher is excellent in polishability. It removes scars and can shorten polishing time. In cases where Diamond Polisher is used with high pressure and high rotating speed, the surface of the restoration will not be shiny. Rotation Speed Rate is lower than 10,000 rpm.

•C&B Nano Diamond Polisher

C&B Nano Diamond Polisher contains a larger quantity of fine diamond particles than C&B Diamond Polisher and provide high-precision polishing. This material is recommended to use at final polishing. In cases where Diamond Polisher is used with high pressure and high rotating speed, the surface of the restoration may be burned. Rotation Speed Rate is lower than 20,000 rpm.

Steps for Polishing TWiNY and TWiNY Flow



Diamond Polisher	Abrasive Particle Size of diamond (µm)	Rotation Speed Rate (rpm)
C&B Diamond Polisher	1 ~ 2	Lower than 10,000 rpm.
C&B Nano Diamond Polisher	0.5 or smaller	Lower than 20,000 rpm.



Related Products



C&B Diamond Polisher
8 g



C&B Nano Diamond
5 g

TWiNY Product Line-up

ADVANCED SET

Invisible Opaque 2 mL : IvO
Opaque 2 mL : OA2, OA3, OA3.5
Opaque Special Colors 2 mL : InO1, MO
Cervical 4.8g(2.6 mL) : CA1, CA2
Opaque Dentine 4.8g(2.6 mL) : ODA2, ODA3, ODA3.5
Accessory • Flat Brush 3 pcs • Round Brush 3 pcs • Mixing Papers 50 sheets • Palette 5 pcs (1 shade cover)

Dentine 4.8g(2.6 mL) : DA2, DA3, DA3.5
Enamel 4.8g(2.6 mL) : E3, E4
Translucent 4.8g(2.6 mL) : T, CT2
Gum Opaque 2 mL : OG1, OG3, OG5
Gum 4.8g(2.6 mL) : G1, G3, G5, G7
Gum Modifier 4.8g(2.6 mL) : GM Gray, GM Trans
Gum Stain 1 mL : G Dark Red, G Red, G Milky, G Violet
Multi Primer Paste 2 mL
Multi Primer Repair Liquid One 6 mL
Resin Spacer 5 mL

REGULAR SET

Invisible Opaque 2 mL : IvO
Opaque 2 mL : OA2, OA3, OA3.5, OB2, OB3
Opaque Special Colors 2 mL : InO1, MO
Cervical 4.8g(2.6 mL) : CA1, CA2, CB1
Opaque Dentine 4.8g(2.6 mL) : ODA2, ODA3, ODA3.5, ODB2, ODB3
Accessory • Flat Brush 3 pcs • Round Brush 3 pcs • Mixing Papers 50 sheets • Palette 5 pcs (1 shade cover)

Dentine 4.8g(2.6 mL) : DA2, DA3, DA3.5, DB2, DB3
Enamel 4.8g(2.6 mL) : E2, E3, E4
Translucent 4.8g(2.6 mL) : T, CT2
Multi Primer Paste 2 mL
Multi Primer Repair Liquid One 6 mL
Resin Spacer 5 mL

INTRO SET

Invisible Opaque 2 mL : IvO
Opaque 2 mL : OA3
Cervical 4.8g(2.6 mL) : CA1
Dentine 4.8g(2.6 mL) : DA3
Enamel 4.8g(2.6 mL) : E3
Translucent 4.8g(2.6 mL) : T
Multi Primer Paste 2 mL
Multi Primer Repair Liquid One 6 mL
Accessory • Flat Brush 2 pcs • Round Brush 2 pcs

Multi Primer



Hybrid Ceramics Block for CAD/CAM Use



Hybrid Ceramics Block for CAD/CAM Use



Hybrid Composite Resin for C&B



Bonding Materials



STARTER SET

Invisible Opaque 2 mL : IvO
Opaque 2 mL : OA2, OA3, OA3.5
Opaque Special Colors 2 mL : InO1, MO
Cervical 4.8g(2.6 mL) : CA1, CA2
Accessory • Flat Brush 3 pcs • Round Brush 3 pcs • Mixing Papers 50 sheets • Palette 5 pcs (1 shade cover)

Opaque Dentine 4.8g(2.6 mL) : ODA2, ODA3, ODA3.5
Dentine 4.8g(2.6 mL) : DA2, DA3, DA3.5
Enamel 4.8g(2.6 mL) : E3, E4
Translucent 4.8g(2.6 mL) : T, CT2
Multi Primer Paste 2 mL
Multi Primer Repair Liquid One 6 mL
Resin Spacer 5 mL

GUM KIT

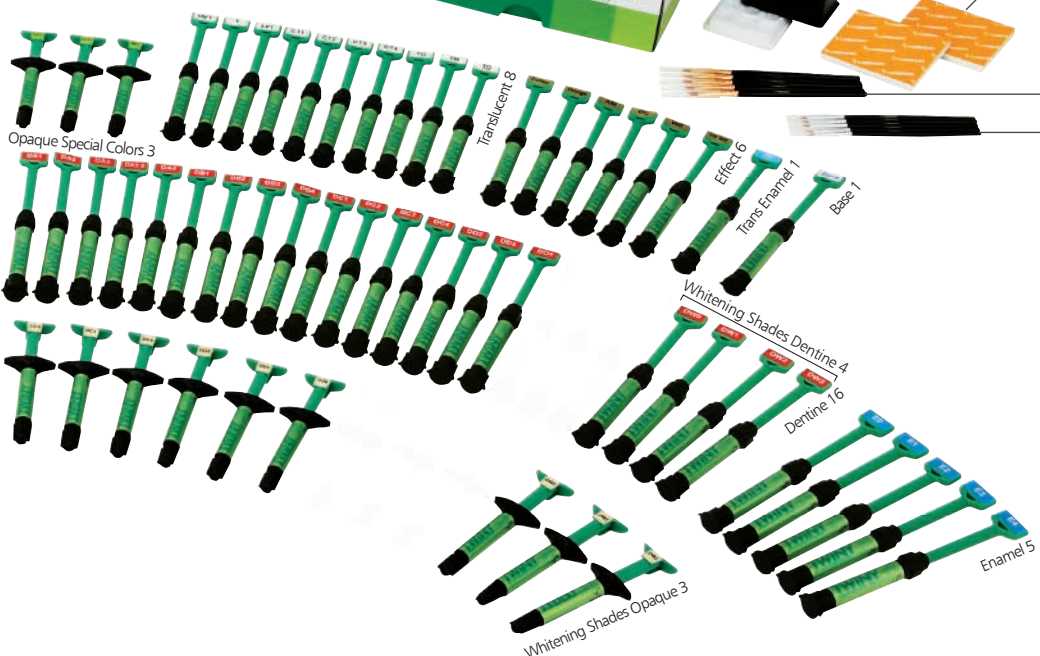
Gum Opaque 2 mL : OG1, OG2, OG3, OG4, OG5
Gum 4.8g(2.6 mL) : G1, G2, G3, G4, G5, G6, G7
Gum Modifier 4.8g(2.6 mL) : GM Gray, GM Trans
Gum Stain 1 mL : G Dark Red, G Red, G Milky, G Violet
Accessory • Flat Brush 3 pcs • Round Brush 3 pcs • Mixing Papers 50 sheets • Palette 5 pcs (1 shade cover)

Palette 5 pcs (1 shade cover)

Mixing Papers 50 sheets

Flat Brush

Round Brush



Enamel Clear



TWiNY Flow



Committed to being a top reliable brand manufacturer of dental materials

YAMAKIN is committed to providing safe, reliable and high-quality products for customer's full satisfaction. In order to achieve this commitment, we have adopted the following rigorous criteria:

Quality Management System for Global Standard Compliance

We were audited and approved by the designated third party TÜV SÜD, Germany, in order to obtain ISO 13485 (Quality Management System of Medical Devices) certification. We have realized an advanced high-level quality management system as a manufacturer of Controlled Medical Devices.



Strict Hygienic Control

From research and development to production, YAMAKIN has established a consolidated management system. Especially, resin products are manufactured under strict hygienic control so as to avoid any dust contamination.

Monitoring of Safety Information

Regarding safety information from the production management stage through to safety management post-marketing surveillance:
In order to judge quality standards objectively, we set up an independent sales monitoring system, under a marketing supervisor-general. We have assigned a quality assurance manager to the system, who is responsible for Good Quality Practice; and we have also assigned a safety management supervisor, who is responsible for Good Vigilance Practice. We monitor all information reported to us from clinical practices.

The actual color of the product, model and package may differ from the photographs due to printing ink and shooting conditions. Packages and containers are subject to change without prior notice.

Manufacturer

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