TOKUYAMA UNIVERSAL BOND

EVERYTHING & THE...

ACTIVE CHEMISTRY SELF-CURE

provides worry free polymerization when curing lights cannot reach

TRUE UNIVERSAL

all substrates without the need for additional activators and primers

QUICK & EASY

25 second application, no need to agitate, no wait time

Tokuyama

RELIABLE & WORRY FREE

DEFINITION OF UNIVERSAL BOND

Tokuyama UNIVERSAL BOND is a two component self-cured dental adhesive system for direct and indirect restorations. Tokuyama Universal Bond satisfies ALL three application definitions listed by The Dental Advisor. May-June 2017 Vol. 34, No.3

1. Compatible with different etching techniques: total-, self-, or selective-etch mode
2. Compatible with dual- and self-cured materials without the use of a separate activator
3. Can be used as a primer for silica-based and metallic restorations

FEATURES OF

Tokuyama UNIVERSAL BOND

TRUE UNIVERSAL

- Compatibility with self-etch, total-etch, and selective-etch techniques
- Compatibility with light-curing, dual curing, and self-curing
- Applicability to direct and indirect restoration
- Use as a primer for silica-based, zirconia based and metallic restorations

QUICK & EASY APPLICATION

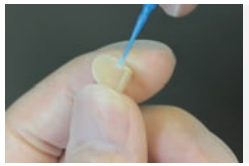
- No need to apply separately for tooth and restoratives
- No need to wait after bond application
- No need to light cure

RELIABLE

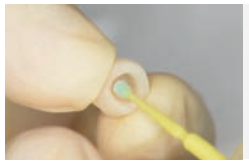
- High bond strength to various dental surfaces & substrates
- Cavity adaption without voids
- Performs with wide mixing ratios & margin for error
- Worry - free polymerization when curing lights cannot reach

INDICATIONS

- Direct anterior and posterior restorations with light-curing, dual-curing, and self-curing composite materials



- Intraoral repair of composite restorations, metal, porcelain fused to metal, and all ceramic restorations without an additional primer



- Cementation of indirect restorations & veneers when combined with light-cure, dual-cure, and self-curing resin cements

- Bonding and repair of denture resin to metal bases, clasps or attachments
- Bonding of opaque resin to a metal base in the fabrication of resin-faced stainless steel crowns

- Bonding of core build-ups made of core build-up materials

UNIVERSAL USE

Applications	TOKUYAMA UNIVERSAL BOND	Scotchbond Universal Adhesive	G-Premio Bond	Futurabond U	All-Bond Universal	Clearfil Universal Bond	Prime & Bond Elect	Xeno Select	Adhese Universal	iBond Universal
Total-Etch, Self-Etch, Selective Etch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Compatible w/ all light-curing, dual-curing, or self curing composites	✓	△ *1	✗ *2	✓	✓	△ *6	△ *3	✗	✓	✓
Direct Restorations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Indirect Restorations	✓	△ *1	△ *3	✓	✓	△ *6	△ *3	✗	✓	✓
Intraoral Repair	✓	✓	△ *4	✓	△ *4	✓ *7	△ *4	✗	△ *8	△ *4
Primer for Prosthesis	✓	△ *1	✗	✗	✓ *5	△ *6	✗	✗	✗	✓ *5

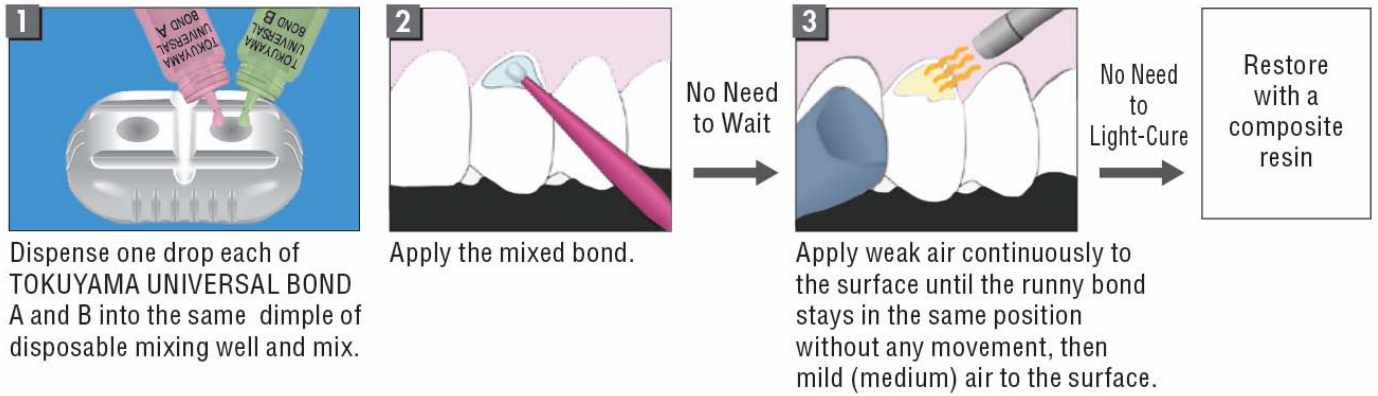
*1 Requires Dual Cure Activator (DCA) unless it is used with Rely X Ultimate
*2 Bonding of dual-cured core build up composites to tooth structure as long as these materials are light-cured
*3 Requires DCA
*4 Requires Primer
*5 Requires light-curing
*6 Requires DCA and light-curing unless it is used with CLEARFIL DC CORE PLUS or PANAVIA SA CEMENT
*7 Primer recommended
*8 Only composite repair

SIMPLE HANDLING

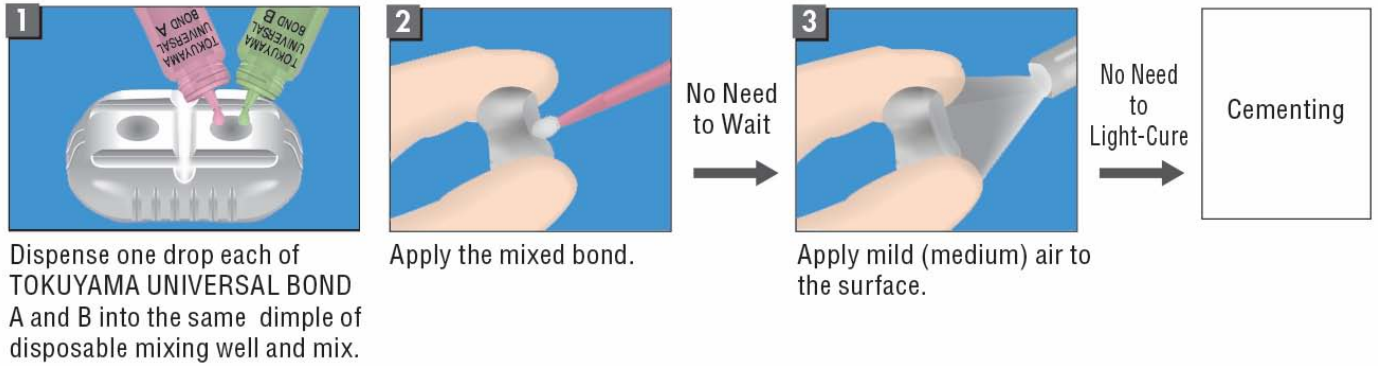
SHORT CHAIR TIME DIRECT & INDIRECT RESTORATIONS

- Keep the bottles as vertical as possible while dispensing the drops into the mixing well.
- Application time is 3 minutes after mixing.
- In the case of intraoral repair of restorations. If the adherent surface includes tooth structure and restorations (ceramics, porcelain, metals or composite materials), apply Tokuyama UNIVERSAL BOND to the entire adherent surface at once. No extra primers are needed.

1) Direct Restorations and Intraoral Repair of Restorations with Composite Resin



2) Cementation of Indirect Restorations



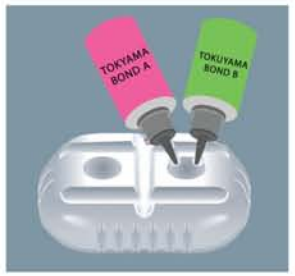
SIMPLE HANDLING

EASY TECHNIQEUE COMPARISON

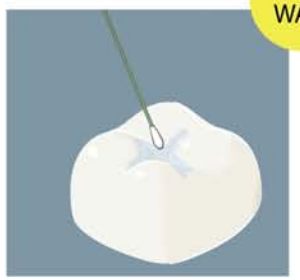
DIRECT RESTORATIONS

TOKUYAMA UNIVERSAL BOND

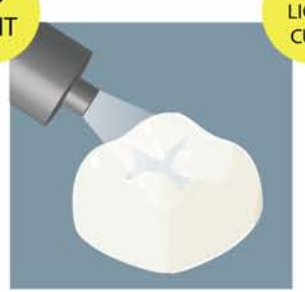
25 SEC



Dispense one drop of each into the same dimple



Apply mixed bond.



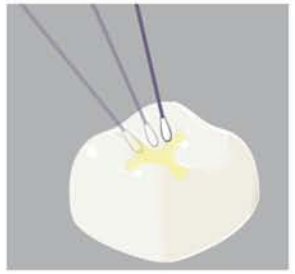
Apply weak air. Then mild air.

Restore with a composite resin

COMPETITORS

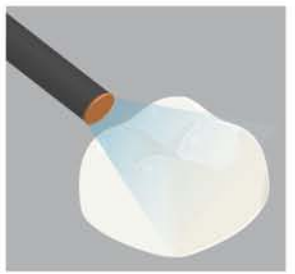
≥35 SEC

Dispense one drop of bonding agent



Apply and Agitate

Air dry to evaporate solvent



Light cure bonding agent

Restore with a composite resin

SIMPLE HANDLING

EASY TECHNIQEUE COMPARISON

INDIRECT RESTORATION

TOKUYAMA UNIVERSAL BOND

25 SEC

Dispense one drop of each into the same dimple

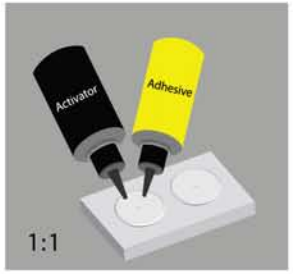
Apply mixed bond.

Apply mild air.

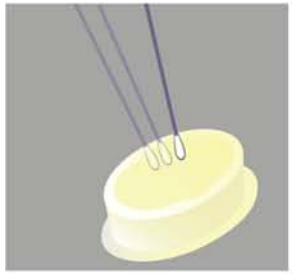
Cementing or Intraoral repair

COMPETITORS

≥40 SEC

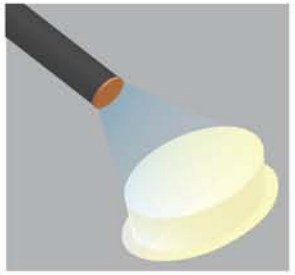


Dispense and mix additional activator



Apply and Agitate

Air dry to evaporate solvent



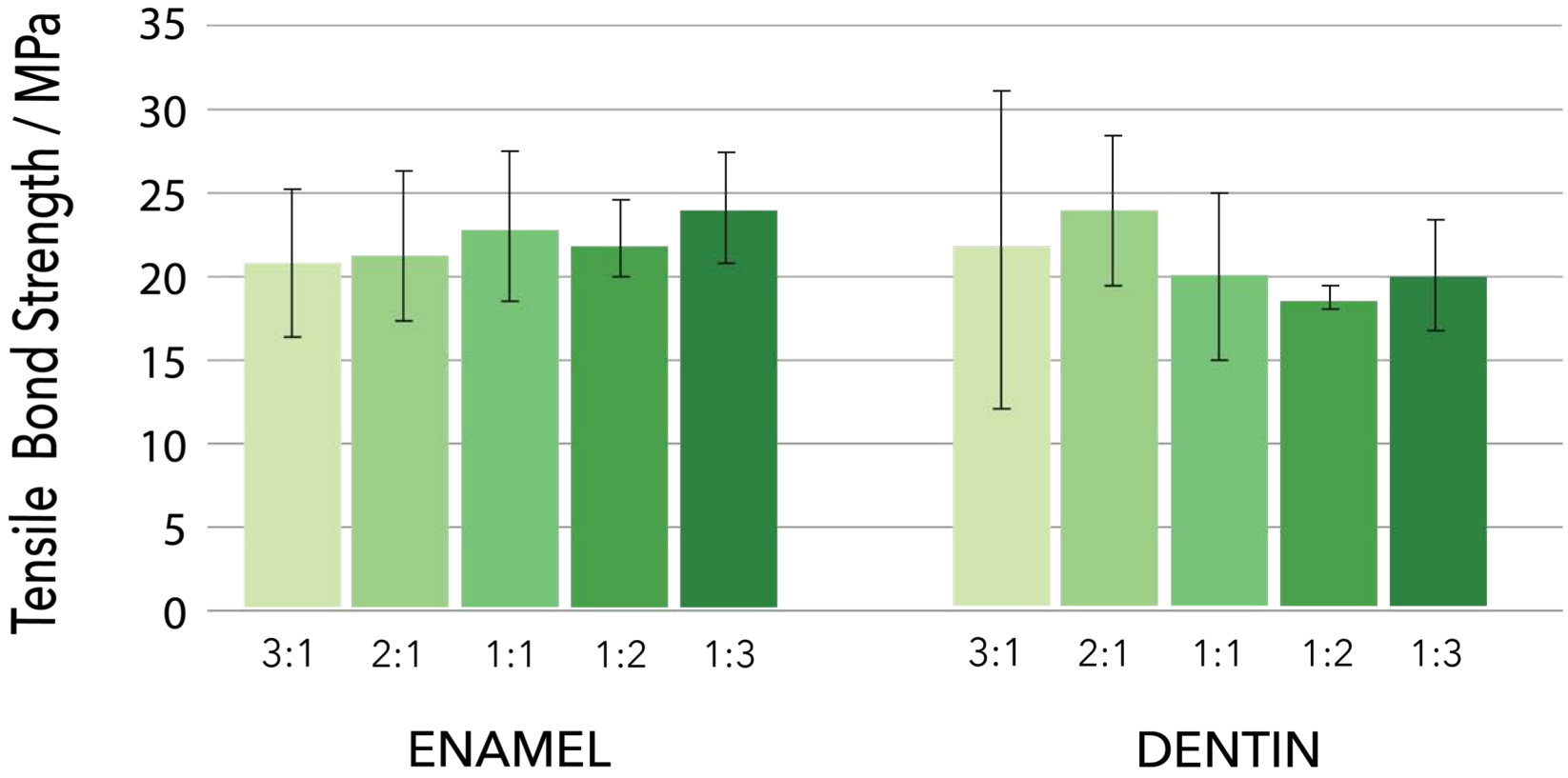
Light cure bonding agent

Cementing or Intraoral repair

SIMPLE HANDLING

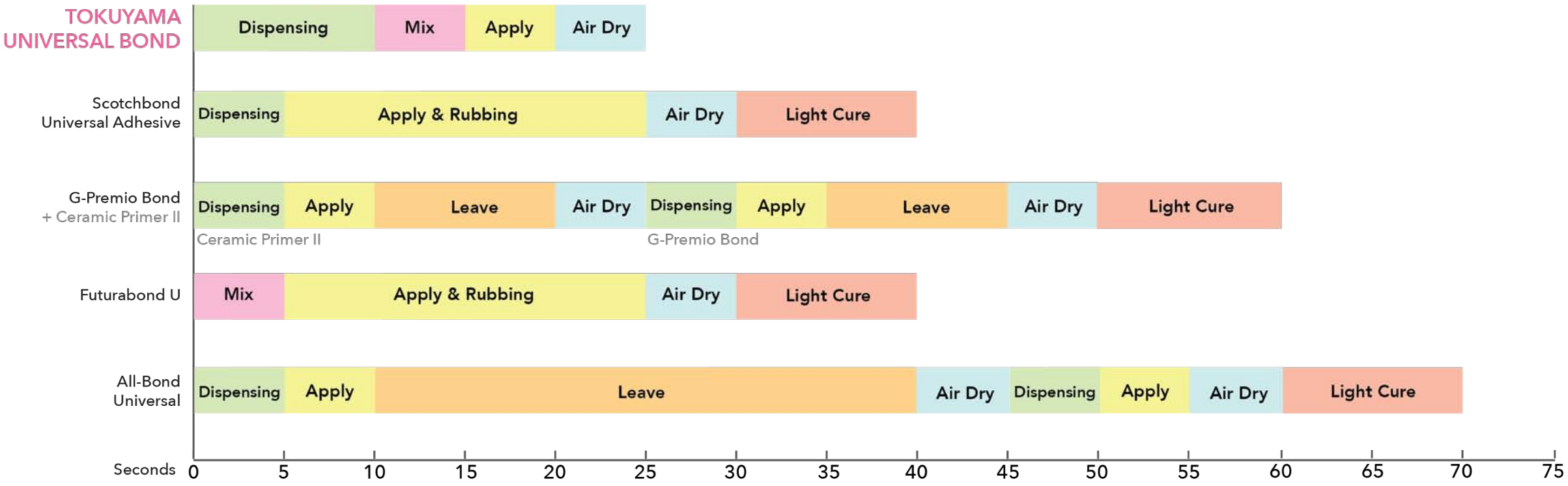
MIXING RATIOS

Maintains performance under a wide range of mixing ratios, offering a wide margin for error.



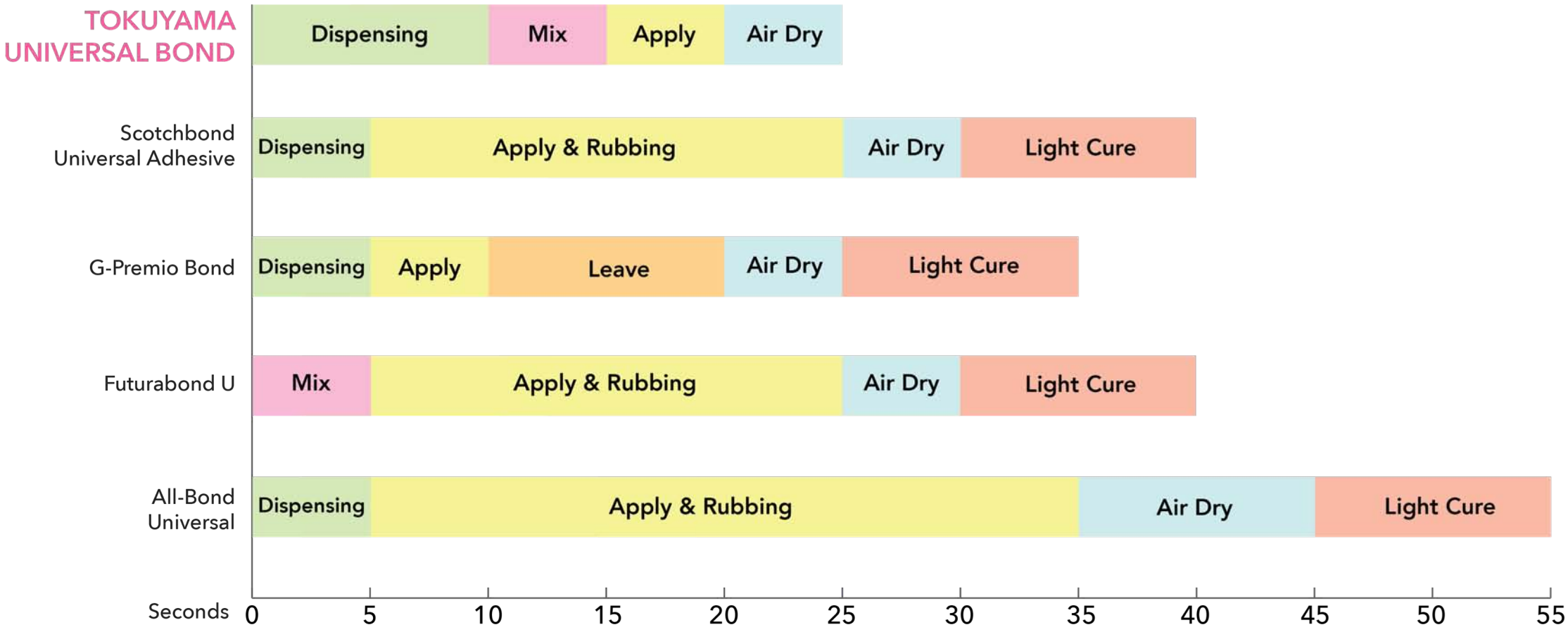
SHORT CHAIR TIME

INDIRECT RESTORATION – INTRORAL REPAIR CERAMICS



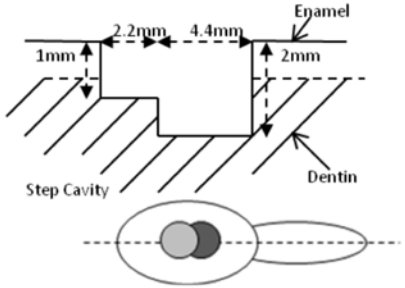
SHORT CHAIR TIME

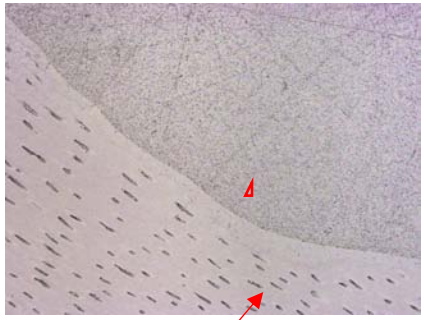
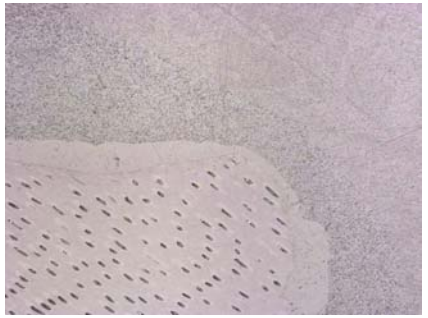
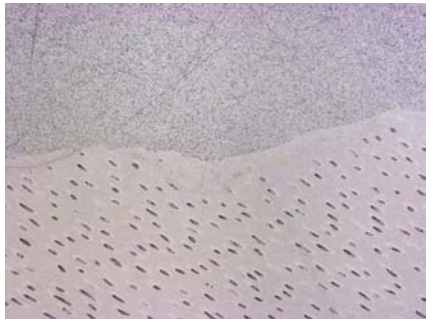
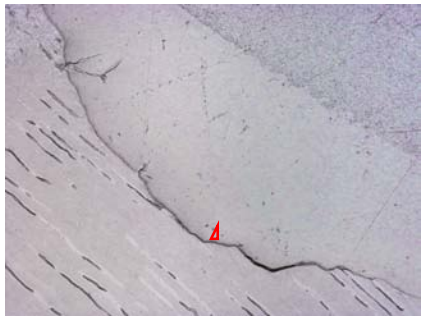
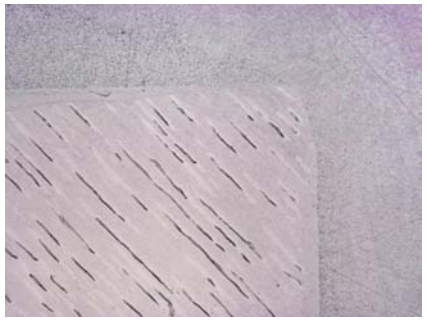
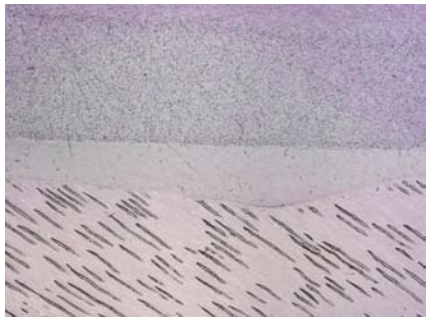
DIRECT RESTORATION - COMPOSITE RESIN



RELIABILITY

CAVITY ADAPTION IN DIRECT RESTORATIONS

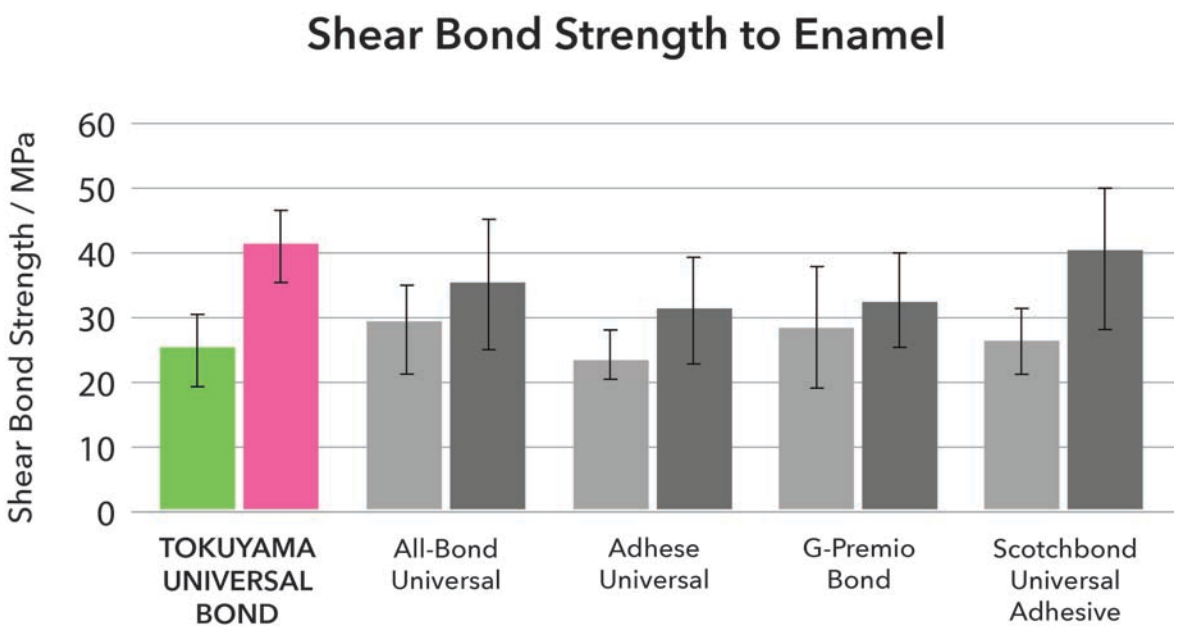


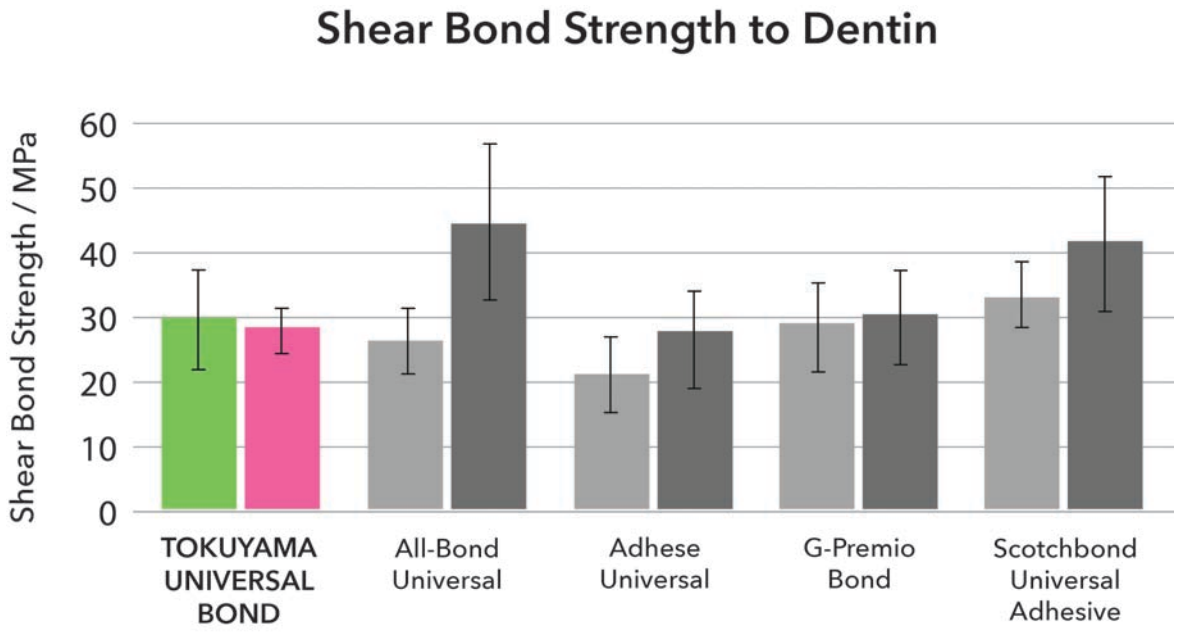
	CORNER	SIDE	EDGE	FLOOR
Tokuyama UNIVERSAL BOND	 NO GAP			
Scotchbond Universal Adhesive	 GAP			

*Tokuyama Dental R&D Data

COMPATIBILITY

ETCHING PROTOCOL





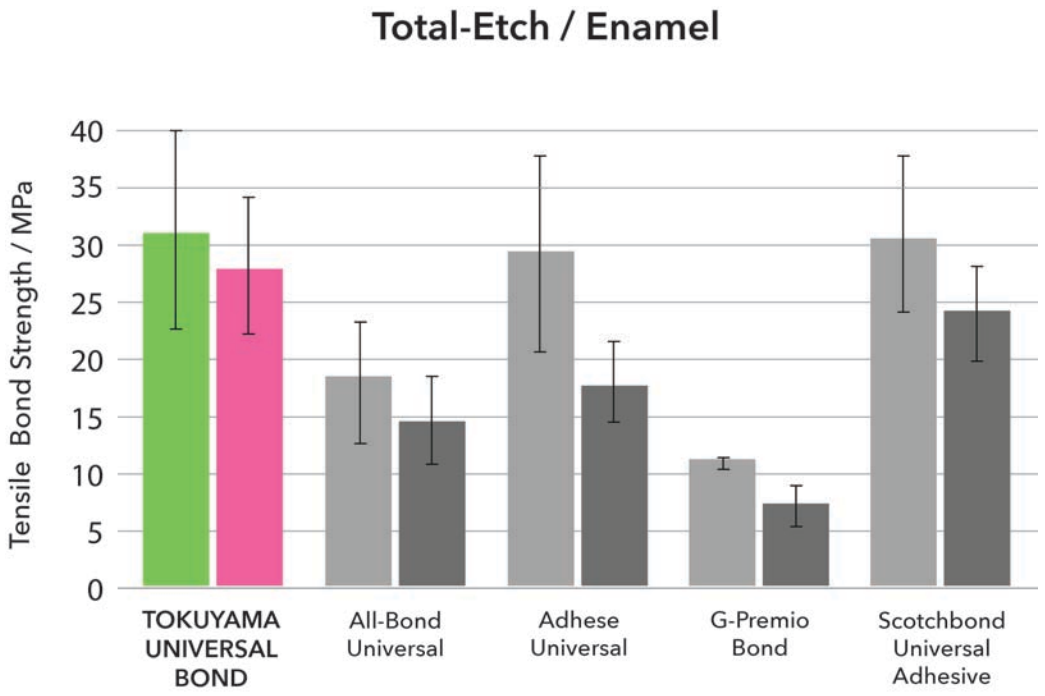
Self-Etch after 24hrs

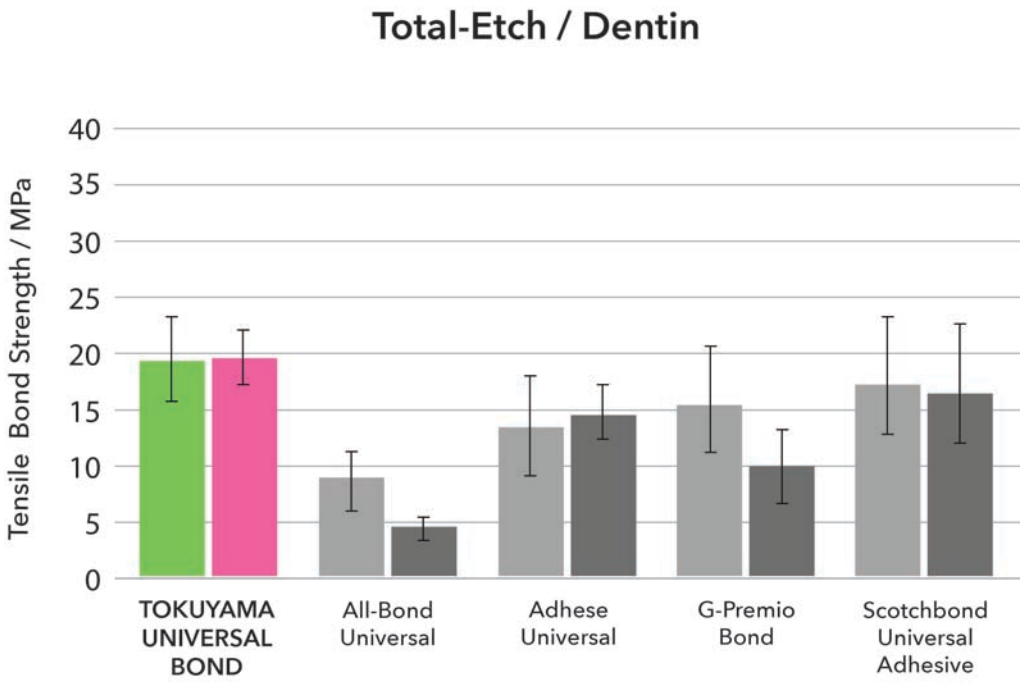
Total-Etch after 24hrs

* The 145th Meeting of the Japanese Society of Conservative Dentistry, 2016

COMPATIBILITY

TENSILE BOND STRENGTH TOOTH





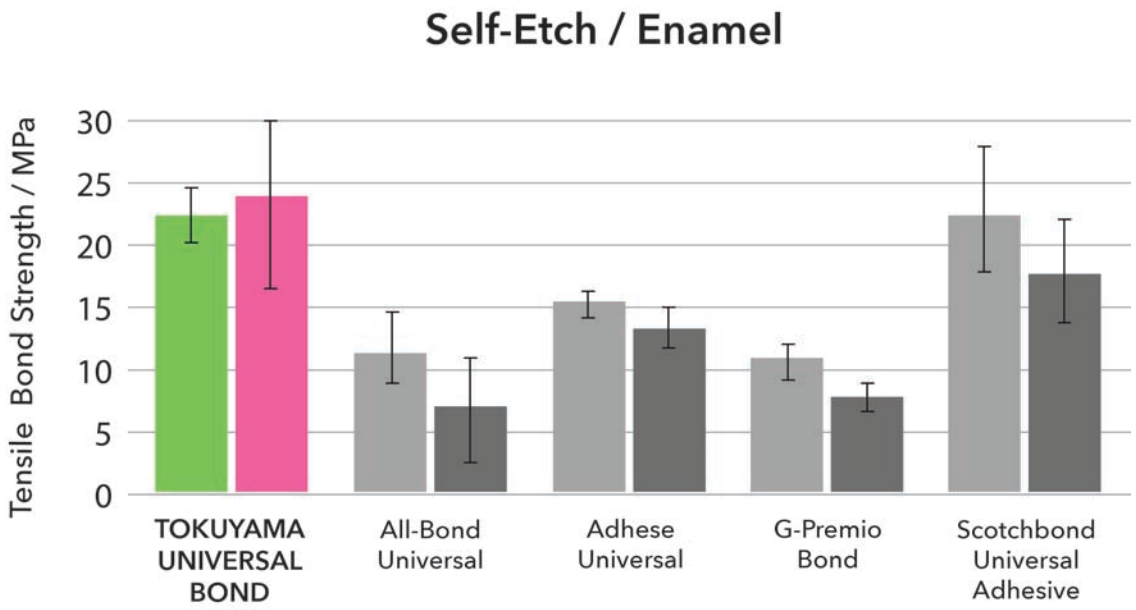
After 24hrs

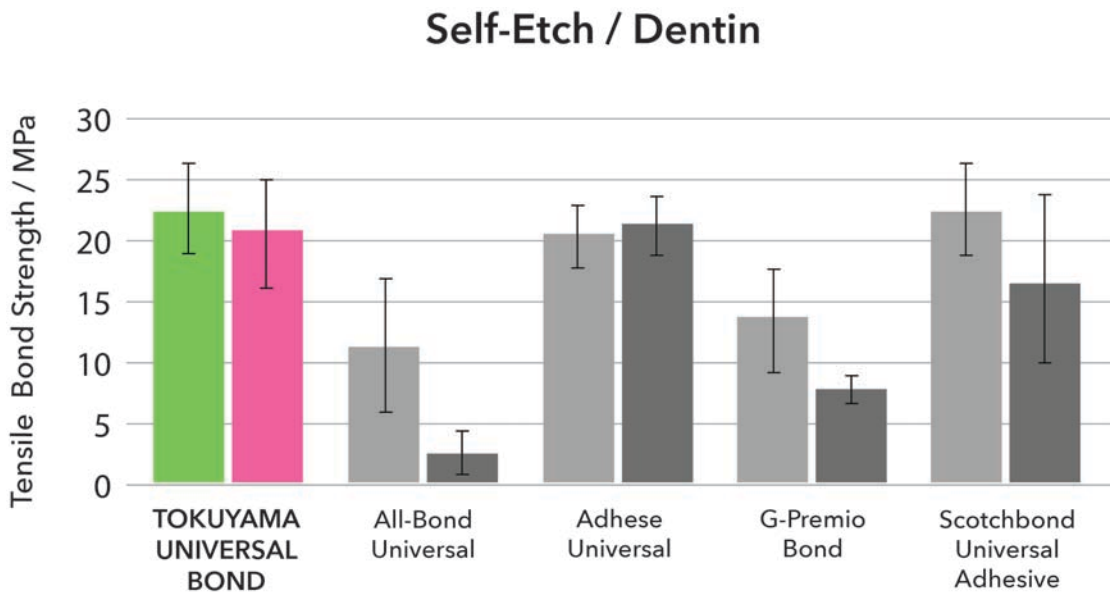
After 3,000 thermo-cycling

*Tokuyama Dental R&D Data

COMPATIBILITY

TENSILE BOND STRENGTH TOOTH





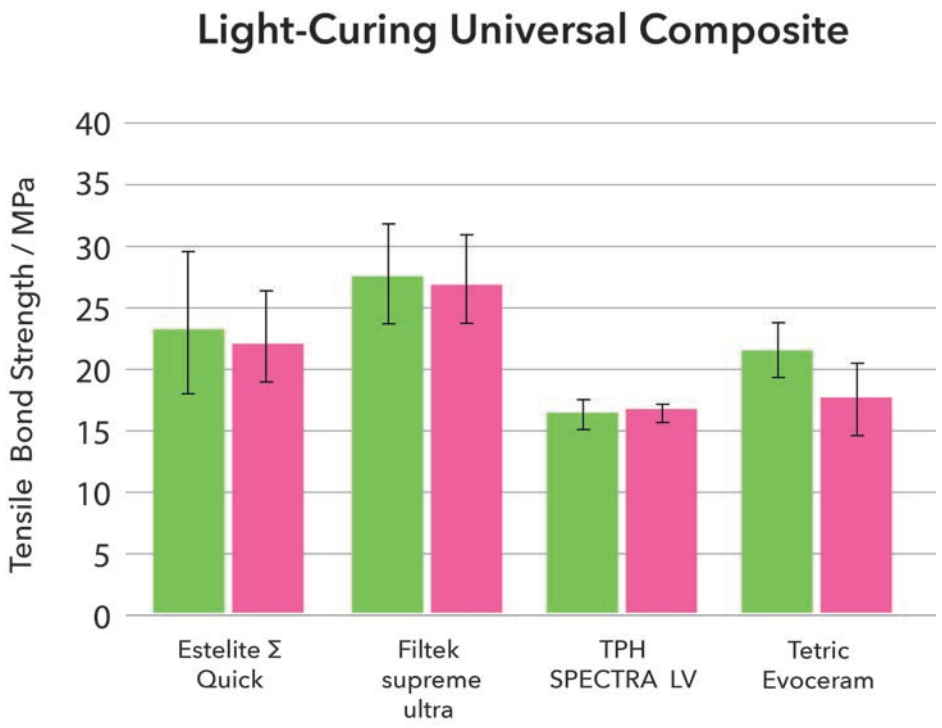
After 24hrs

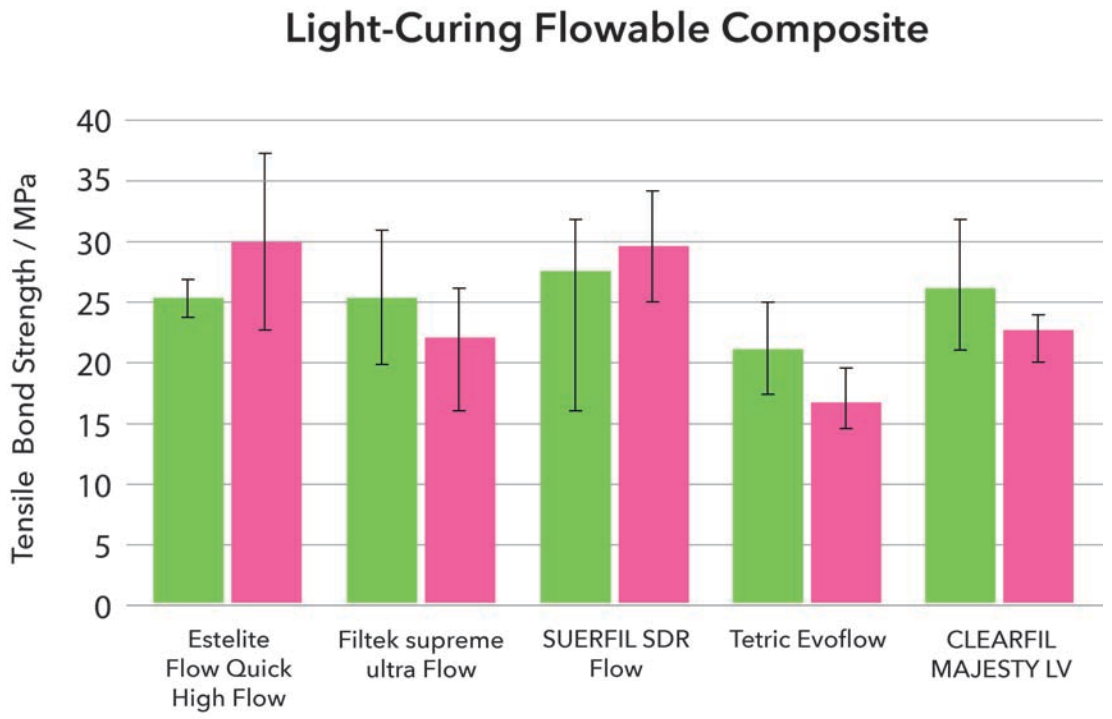
After 3,000 thermo-cycling

*Tokuyama Dental R&D Data

COMPATIBILITY

Tokuyama UNIVERSAL BOND





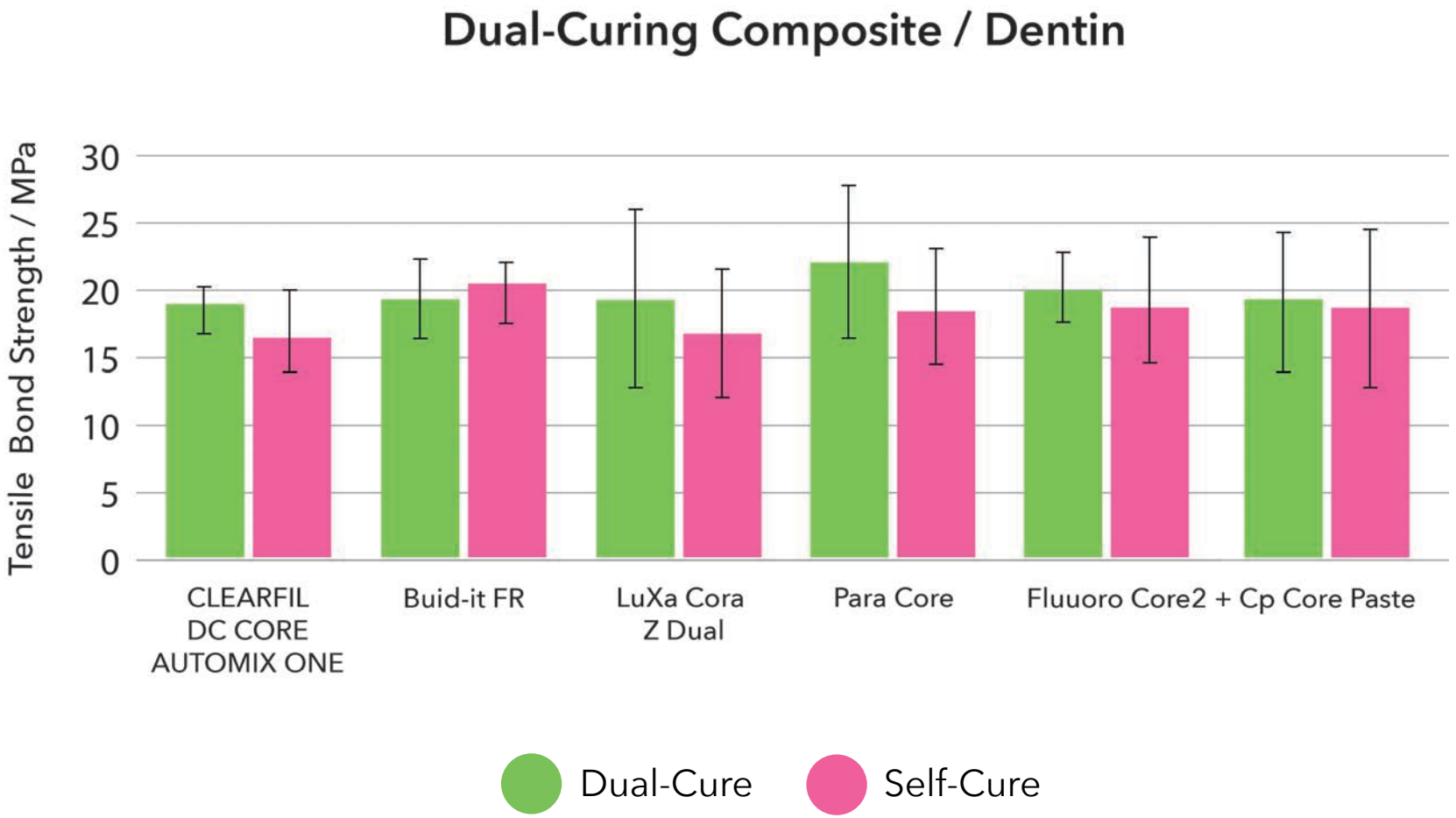
Enamel after 24hrs

Dentin after 24hrs

*Tokuyama Dental R&D Data

COMPATIBILITY

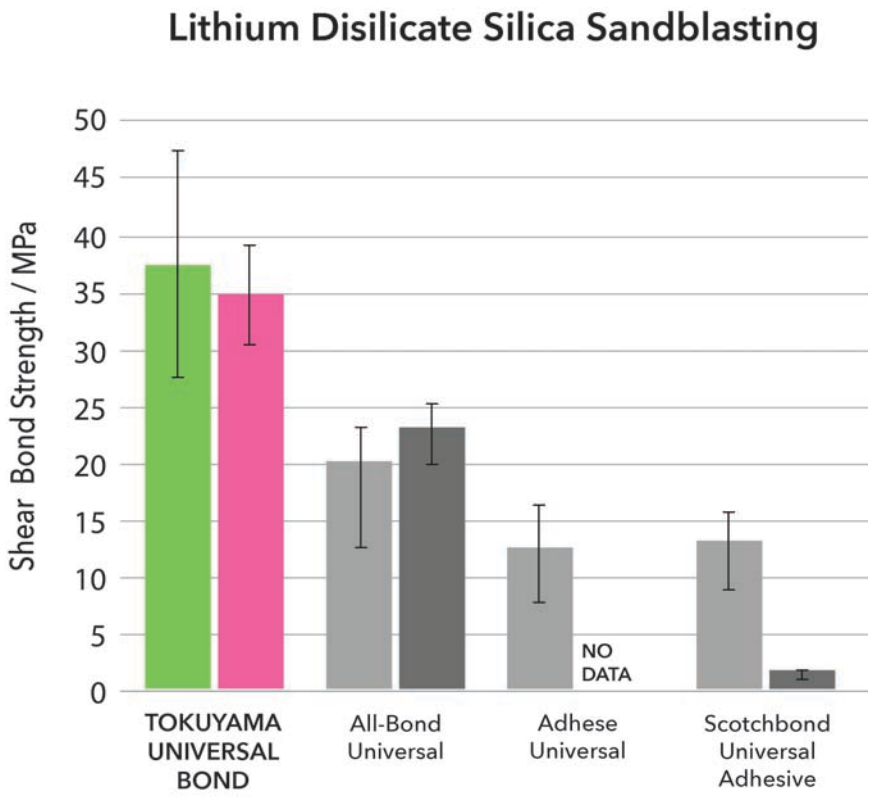
Tokuyama UNIVERSAL BOND

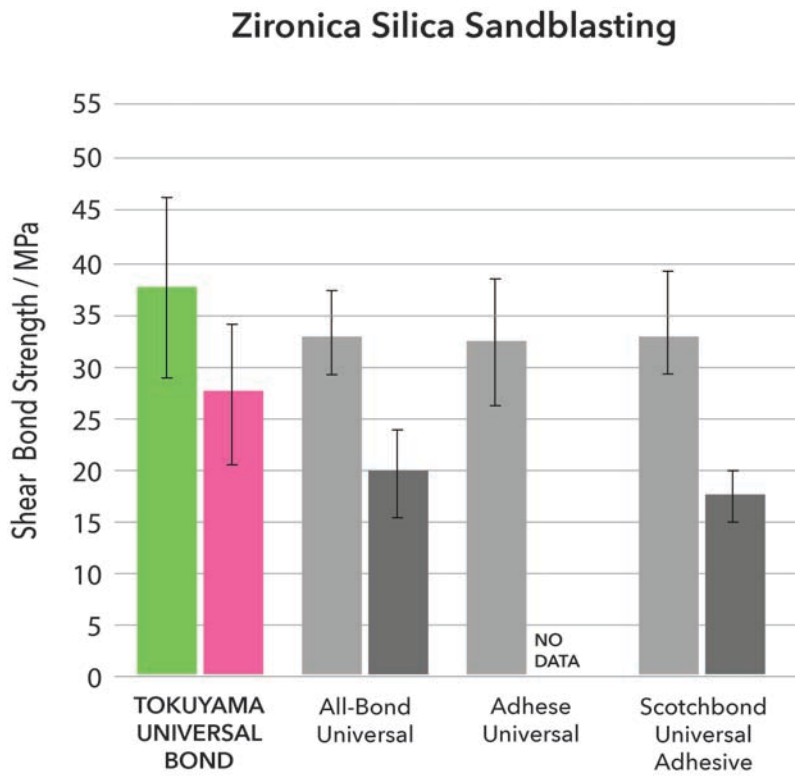


*Tokuyama Dental R&D Data

INTRAORAL REPAIR

SHEAR BOND STRENGTH

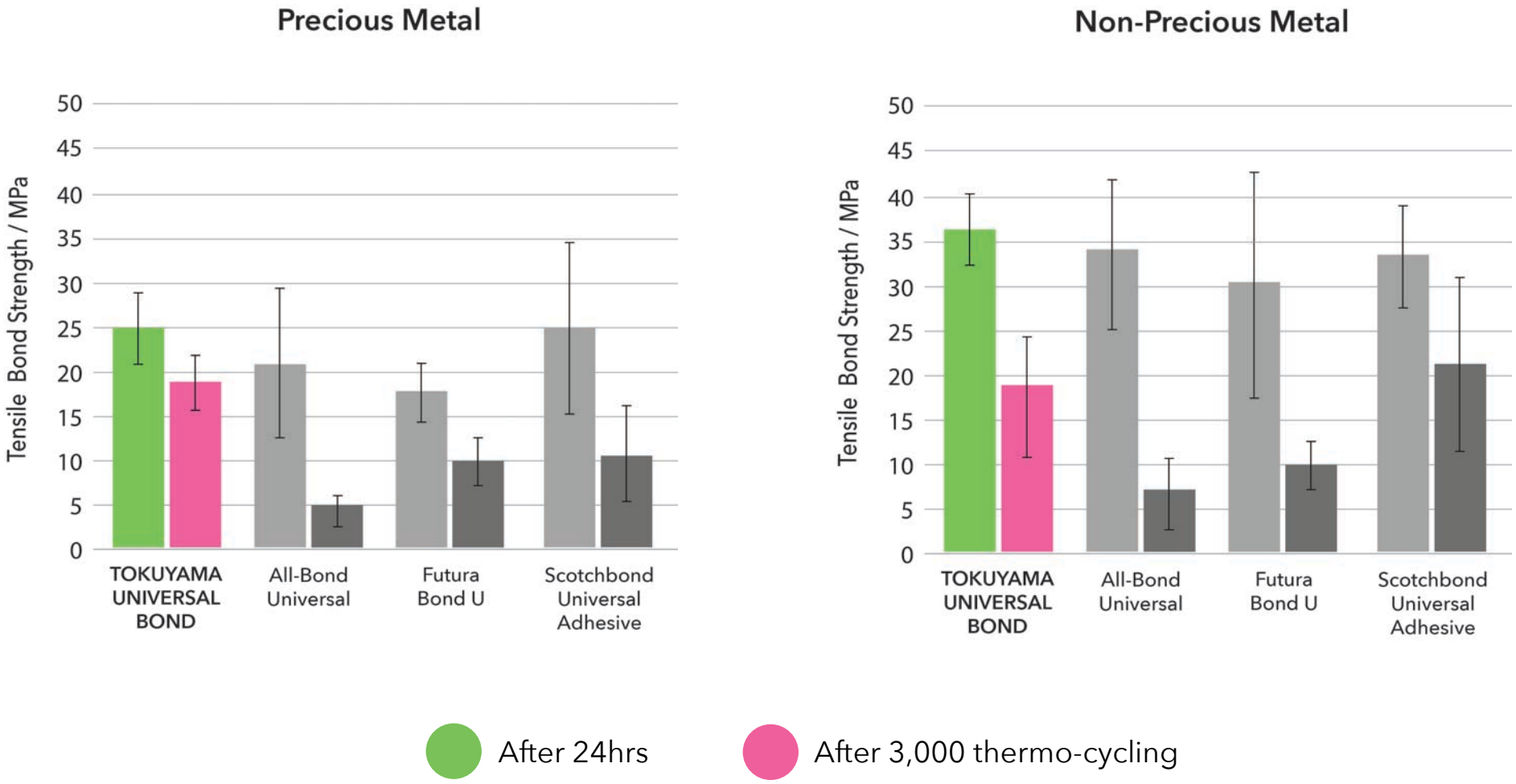




*The 35th Annual Meeting of Japan Society for Adhesive Dentistry, 2016

INTRAORAL REPAIR

TENSILE BOND STRENGTH METAL

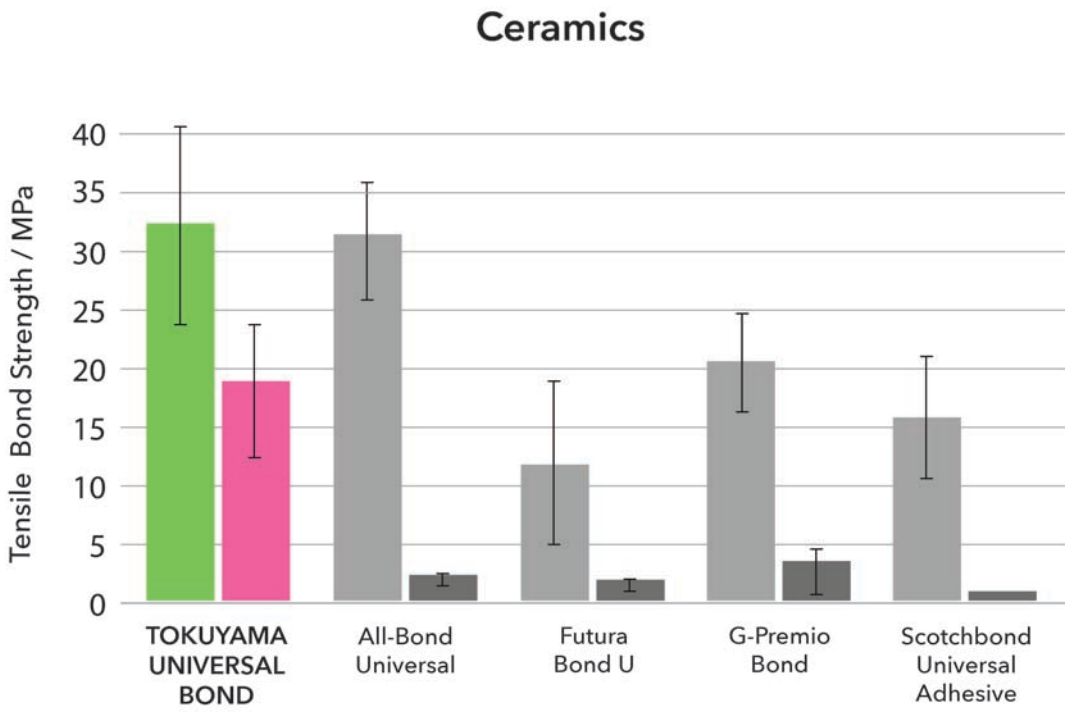


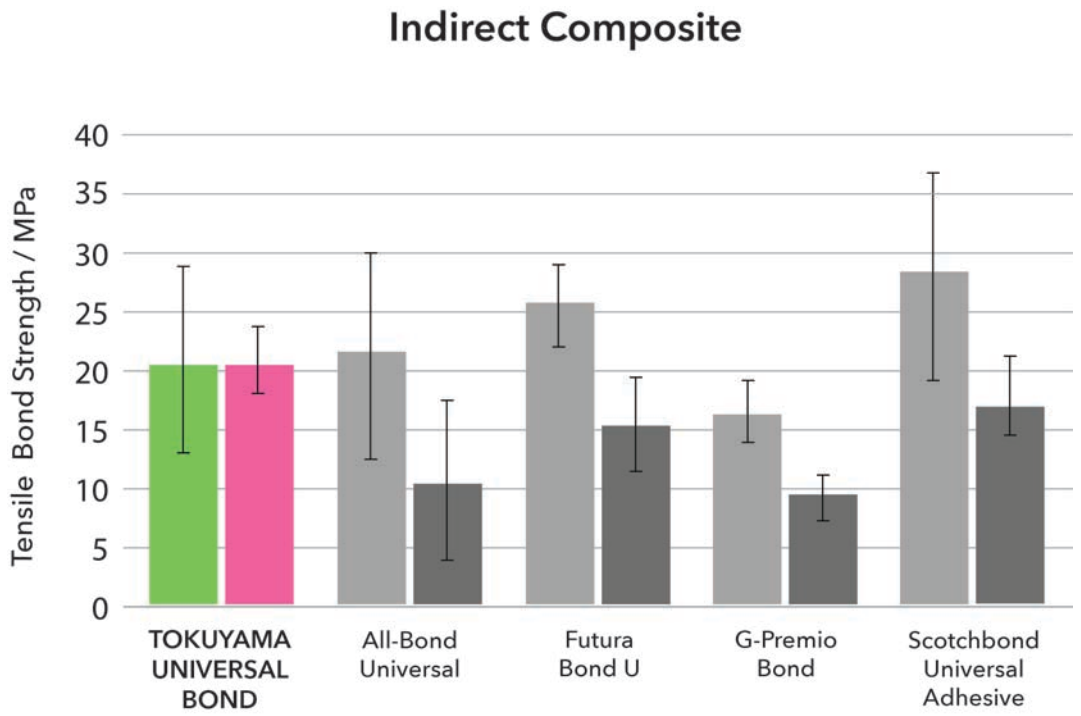
*Precious Metal : CASTMASTER12S/ Tokuyama Dental
*Non-Precious Metal : ICROME / Tokuyama Dental

Tokuyama

INTRAORAL REPAIR

TENSILE BOND STRENGTH





After 24hrs

After 3,000 thermo-cycling

*Ceramics : Super Porcelain AAA / Kuraray Noritake Dental
*Indirect Composite : PEARLESTE / Tokuyama Dental

COMPOSITION

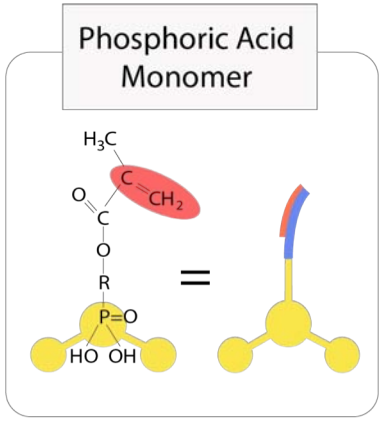
Tokuyama UNIVERSAL BOND

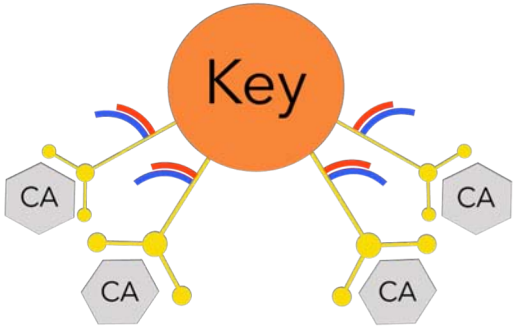
Basic Components	Function
Phosphoric acid monomer (New 3D-SR monomer)	Formation of bonding layer. Adhesion for tooth, zirconia, alumina, and non-precious metal
MTU-6	Adhesion for precious metal
HEMA	Penetration into the tooth sub-stance Formation of bonding layer
Bis-GMA	Formation of bonding layer
TEGDMA	Formation of bonding layer
Acetone	Solvent

Basic Components	Function
γ-MPTES	Adhesion for glass ceramics and resin composite
Borate	Polymerization catalyst
Peroxide	Polymerization catalyst
Acetone	Solvent
Isopropyl alcohol	Solvent
Water	Solvent

MECHANISM OF
ADHESION TO TOOTH

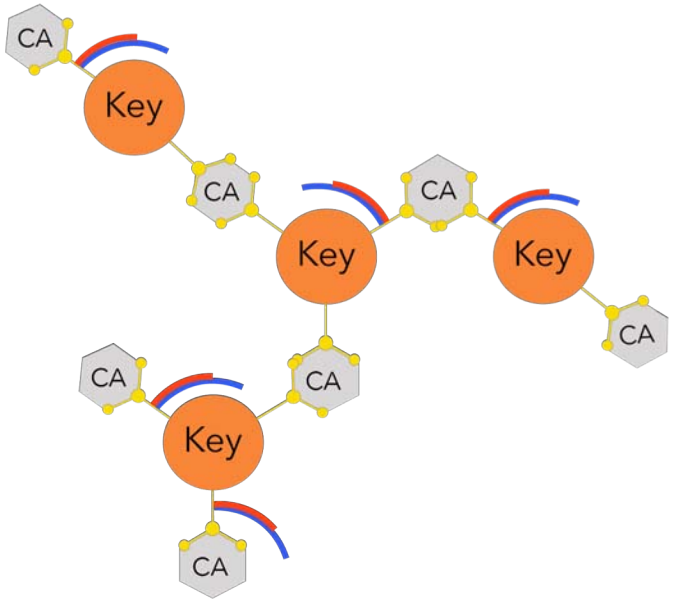
3rd Generation 3D-SR Monomer





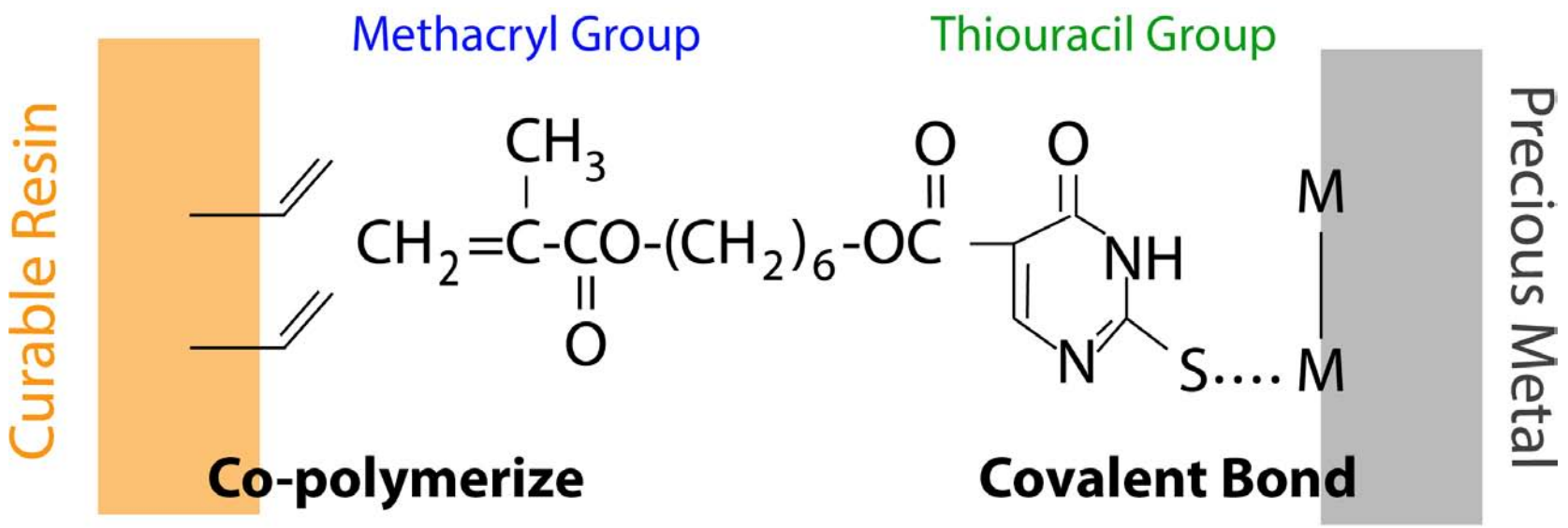
1. Strong bonding to tooth structure surface through multi- point bounding.

2. Improved adhesion layer strength through three- dimensional cross-linking reactions.



The 3D-SR monomer have several functional groups that can interact with calcium and polymerizing groups per molecule. **Tokuyama UNIVERSAL BOND** has an enhanced response to tooth calcium and durability by using a new 3rd generation 3D-SR monomer.

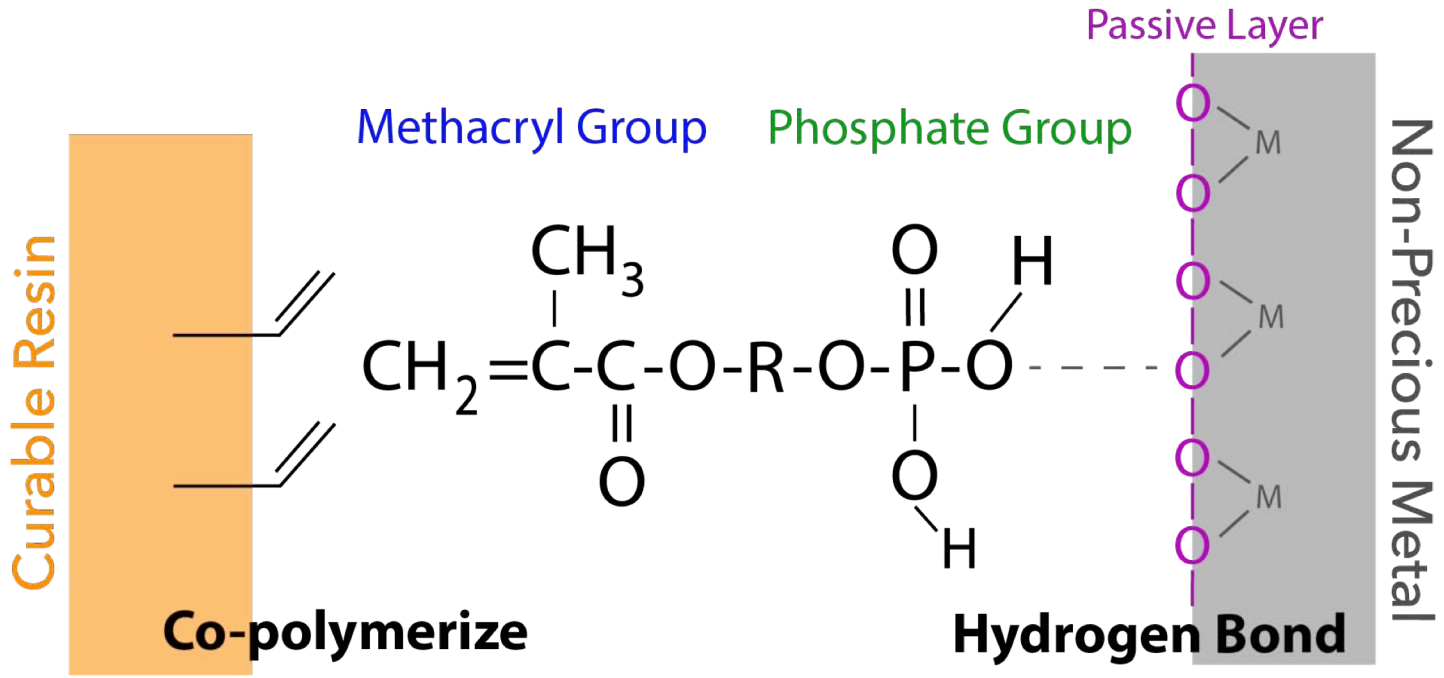
MECHANISM OF
ADHESION TO PRECIOUS METAL



The sulfur atom in the thiouracil group of MTU-6 interacts with precious metal (covalent bond) and additionally, the methacryl group co- polymerizes with monomers in dental-curable materials.

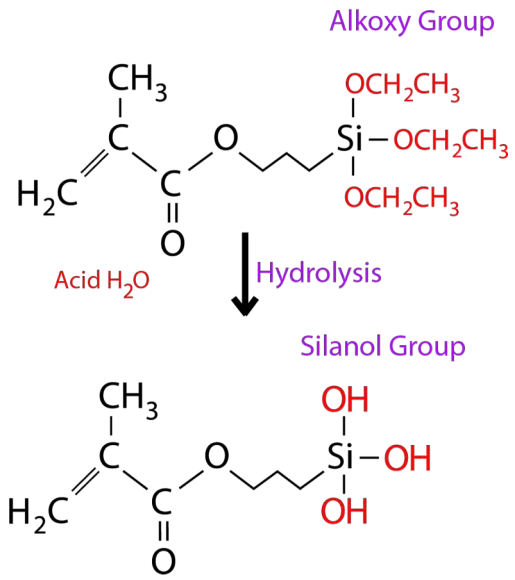
MECHANISM OF

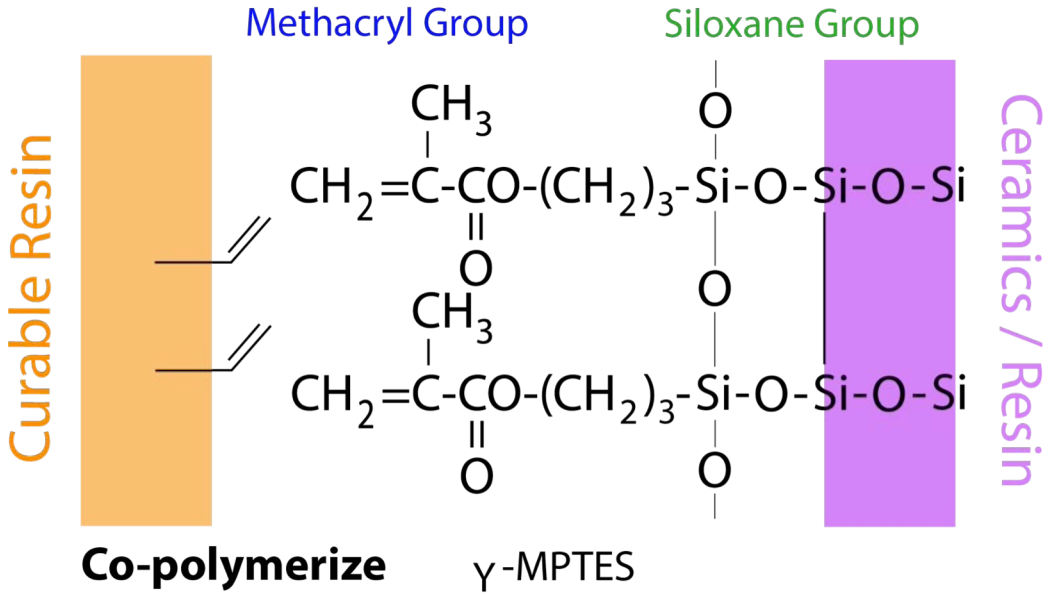
ADHESION TO NON-PRECIOUS METAL



The phosphate group of new 3D-SR monomer interacts with the oxygen atom of the passive layer of a non-precious metal surface (hydrogen bond) and additionally, the methacryl group co-polymerizes with monomers in dental curable materials.

MECHANISM OF
ADHESION TO GLASS-CERAMICS/RESIN

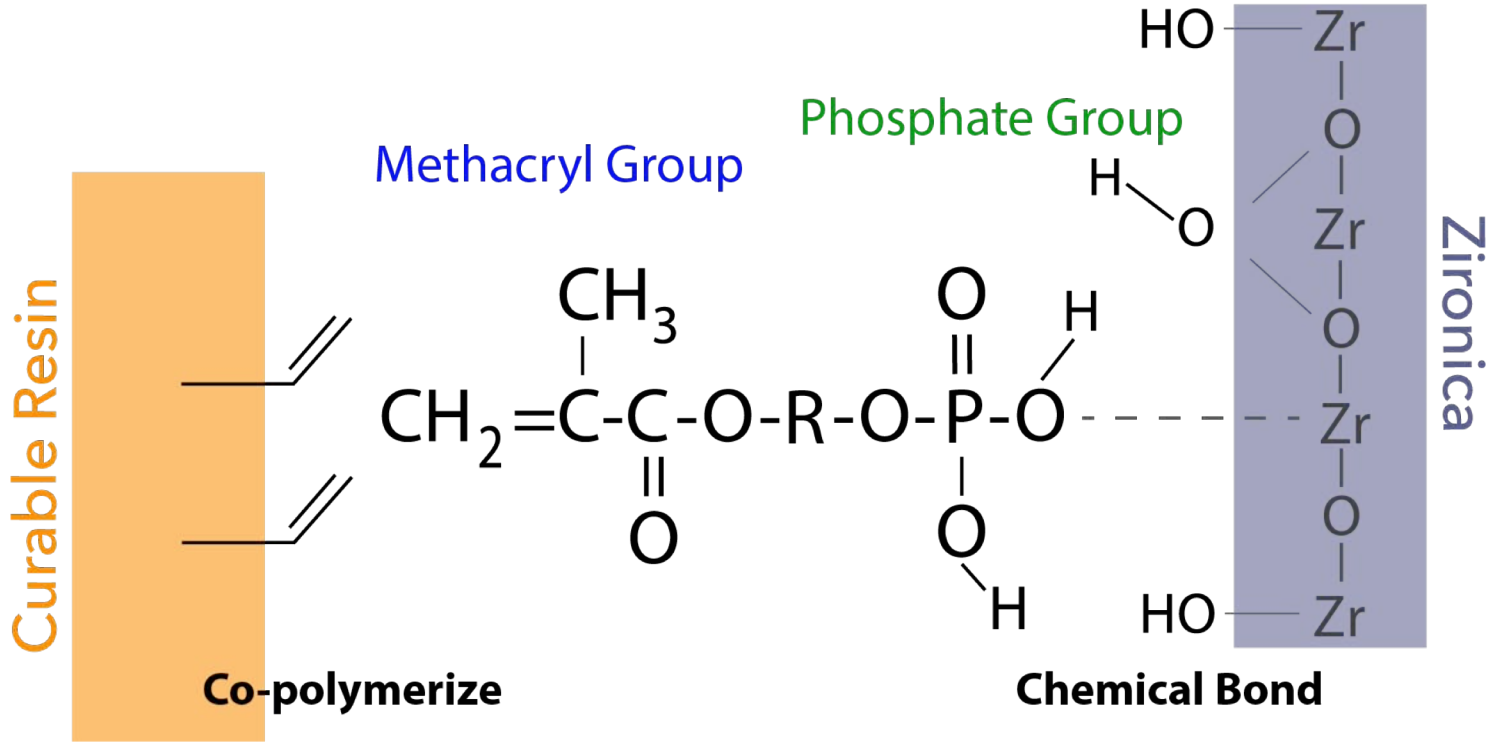




The alkoxy group in γ-MPTES reacts with water to form a silanol group and next, a siloxane bond is formed by a dehydration and condensation reaction with the silanol group on the ceramic surface. Additionally, the methacryl group co-polymerizes with monomers in dental curable materials. Since the new silane coupling agent, γ-MPTES is more stable in the bottle than the conventional one (γ-MPS), the adhesion effect lasts for a long time.

MECHANISM OF

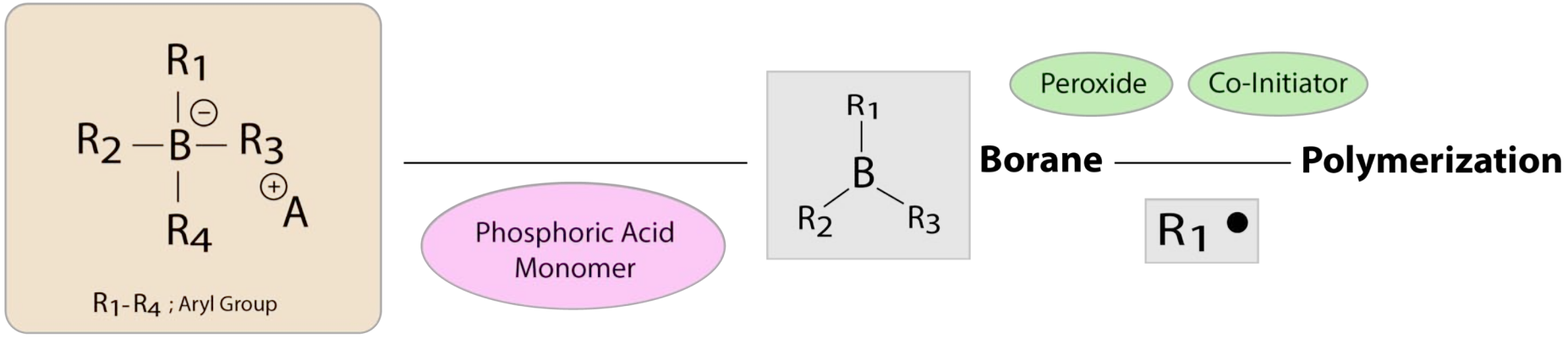
ADHESION TO ZIRCONIA/ALUMINA



It is believed that the phosphate group of the new 3D-SR monomer forms chemical bonds with the zirconia/alumina surface for adhesion.

MECHANISM OF
POLYMERIZATION INITIATOR

Active-Chemistry Technology



Active - Chemistry technology is superior to the conventional chemical polymerization initiator, a benzoyl peroxide/amine system, because it exhibits high catalytic activity under strongly acidic conditions. A thin bonding layer formed after air blow becomes hard because of rapid progression of polymerization and curing on its adhesive interface (Contact Cure), when it comes into contact with resin materials such as composite resin.