Tokuyama Dental

PALFIQUE UNIVERSAL BOND

Ver. 1.1 (170816)

PALFIQUE UNIVERSAL BOND is
a two-component (Two bottle) self-cured
dental adhesive system
for direct and indirect restorations

Definition of Universal Bond

THE DENTAL ADVISOR Vol. 30, No. 02 March 2013

When defining universal bonding agents, manufacturers are referring to one or more of the following three parameters:

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

The three requirements are listed by The Dental Advisor. However, no "universal" type products meeting all these three requirements are commercially available and products meeting only one or two of these requirements are also referred to as "universal."

PALFIQUE UNIVERSAL BOND is the only product satisfying all the three application requirements.

Features of PALFIQUE UNIVERSAL BOND

Universal Use

- Compatibility with self-etch, total-etch and selective-etch techniques
- Applicability to direct and indirect restoration
- Compatibility with light-curing, dual-curing and self-curing composite materials without the use of a separate activator
- Use as a primer for silica-based, zirconia based and metallic restorations

Simple Handling

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

Reliability

- High bond strength

Universal Use

Manufacture	Tokuyama Dental	3M ESPE	GC	Voco	Bisco	Kuraray Noritake Dental	Dentsply		Ivoclar Vivadent	Heraeus Kulzer
Product	PALFIQUE 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 with 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

Universal Use

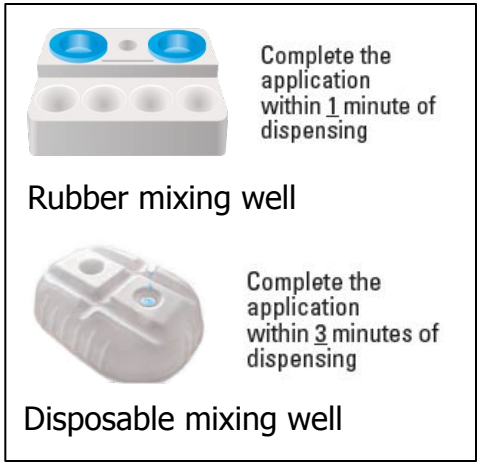
Compatibility with all etching protocols

	PALFIQUE UNIVERSAL BOND	PALFIQUE BOND	TOKUYAMA EE BOND
Self-etch	✓	✓	–
Total-etch	✓	–	–
Selective-etch	✓	optionally	✓

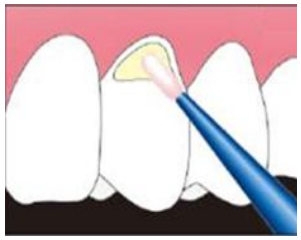
Simple Handling

Composite restoration

Intraoral repair



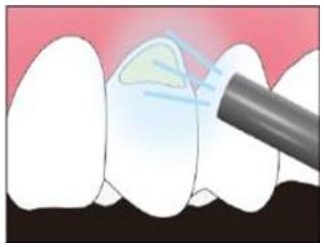
Dispense Bond A and B, and mix.



Apply

Wait: 0 seconds

(No need to wait)

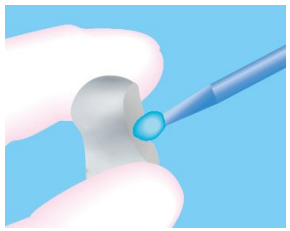


Air dry

No need to Light-cure

CR filling

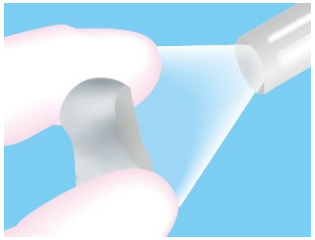
Prosthesis



Apply

Wait: 0 seconds

(No need to wait)



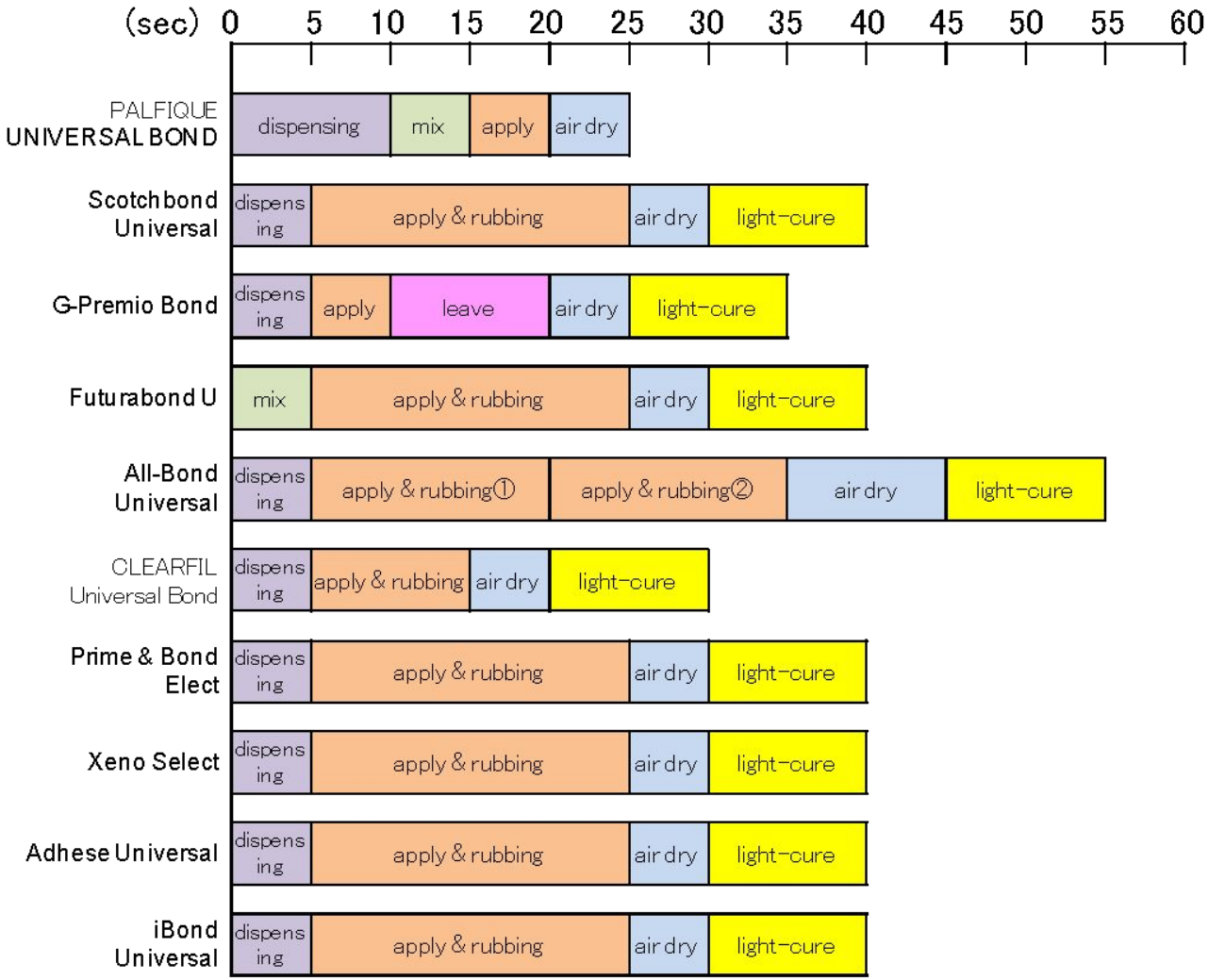
Air dry

No need to Light-cure

Cementing

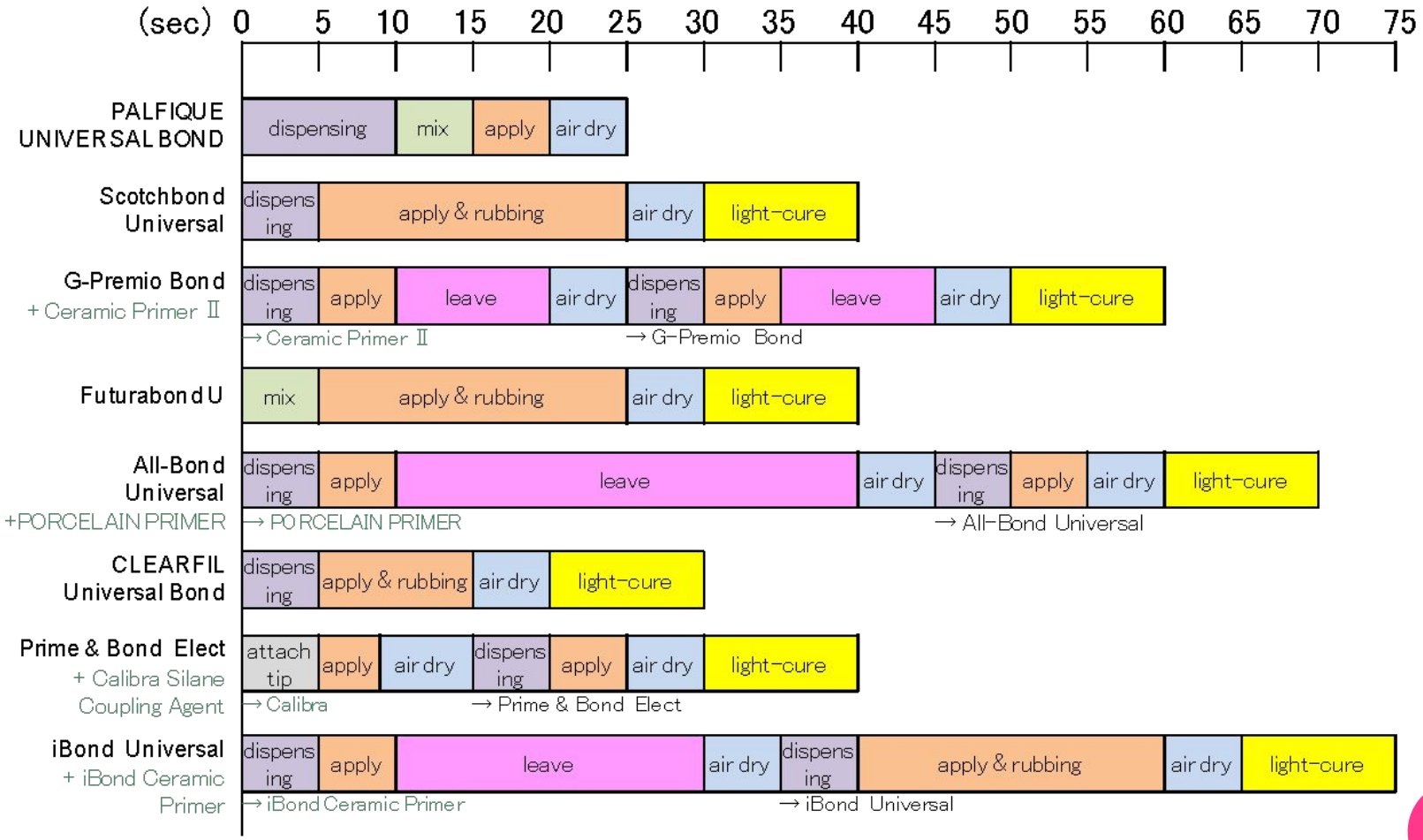
Simple Handling

Short Chair Time -Composite Restoration-



Simple Handling

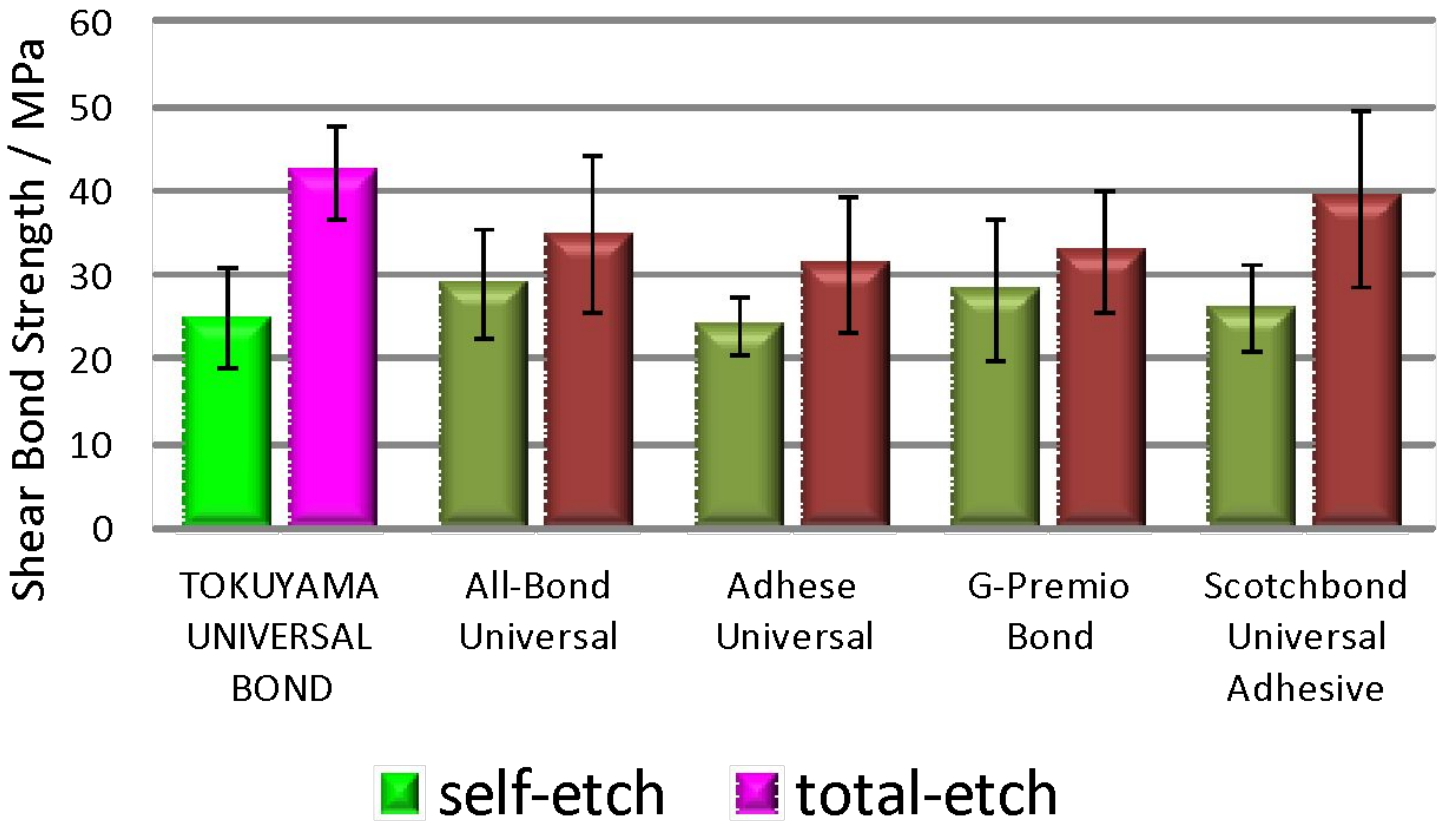
Short Chair Time -Intraoral Repair of Ceramics -



Reliability

Compatibility with all etching protocol

Shear Bond Strength to Enamel

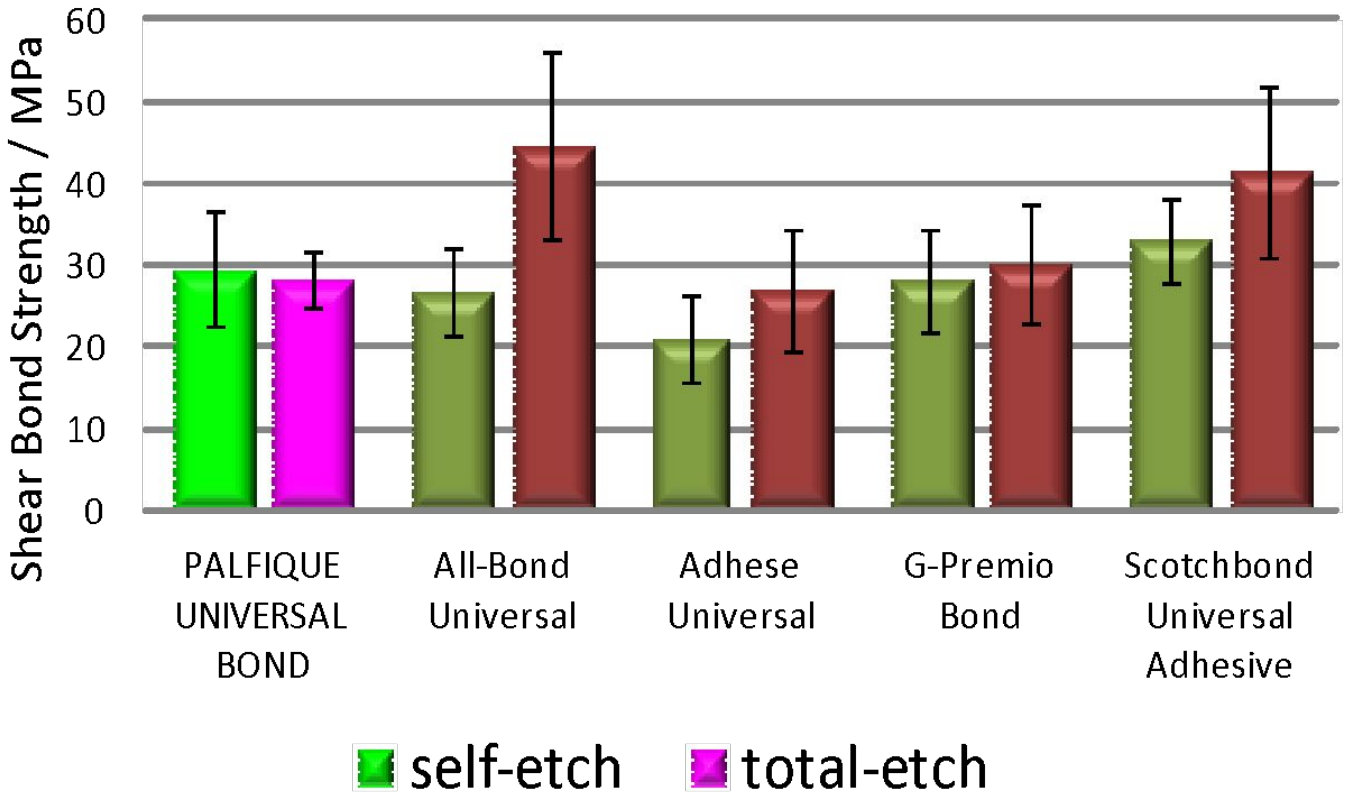


Tsubota, Miyazaki et al. Nihon University
The 145th Meeting of the Japanese Society of Conservative Dentistry, 2016

Reliability

Compatibility with all etching protocol

Shear Bond Strength to Dentin

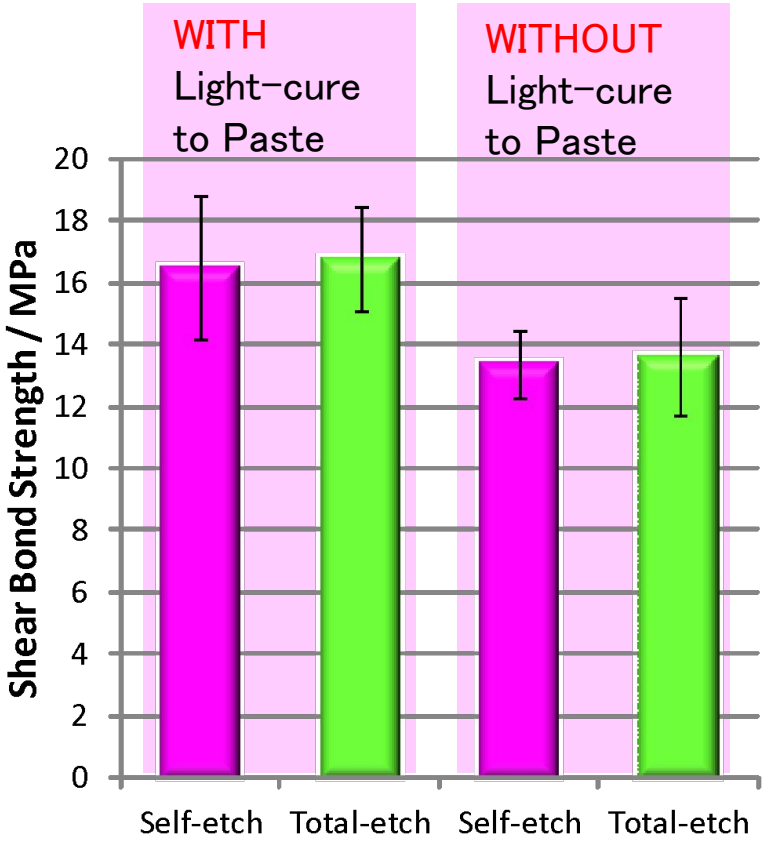


Tsubota, Miyazaki et al. Nihon University
The 145th Meeting of the Japanese Society of Conservative Dentistry, 2016

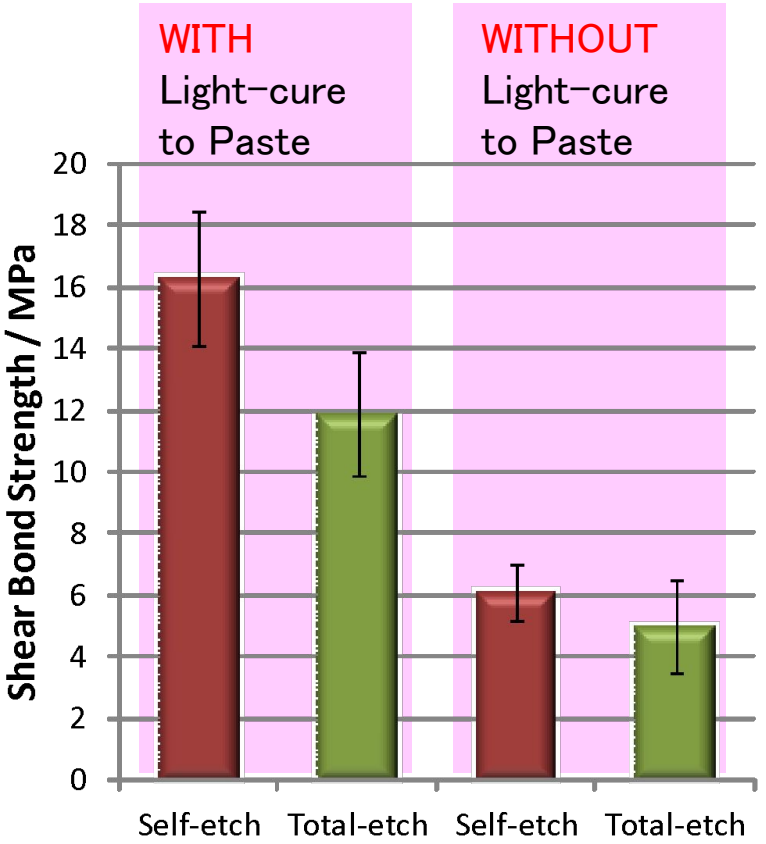
Reliability

Compatibility with all etching protocol

Shear Bond Strength to Dentin



PALFIQUE UNIVERSAL BOND / ESTECEM Plus



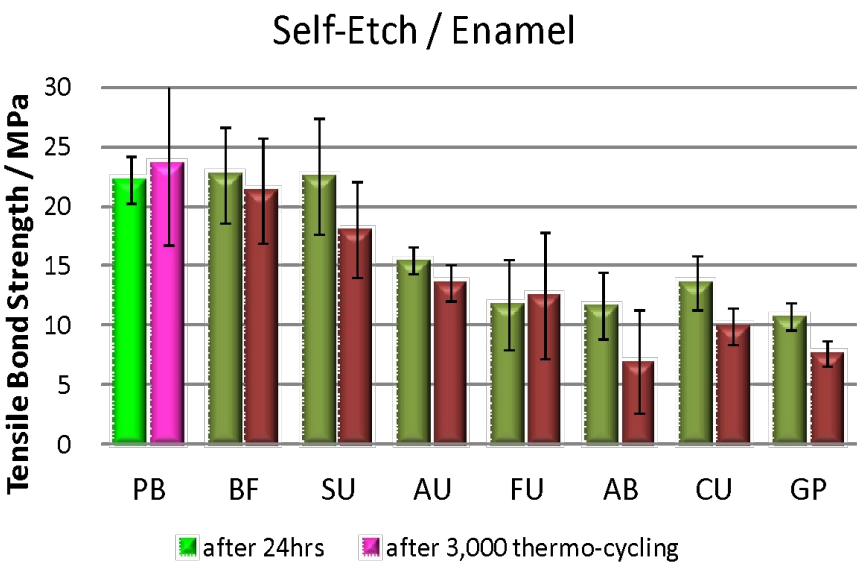
Scotchbond Universal Adhesive/ Rely X Ultimate

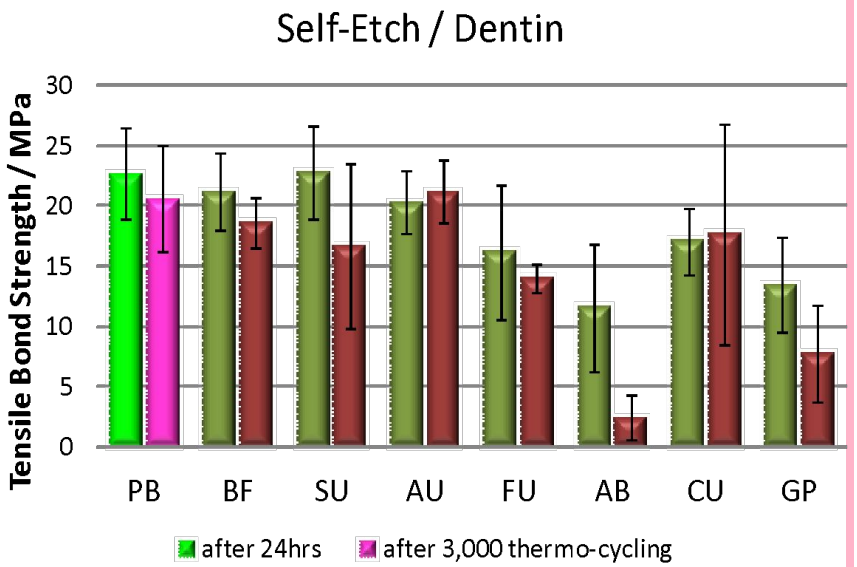
Kurokawa, Miyazaki et al. Nihon University
The 145th Meeting of the Japanese Society of Conservative Dentistry, 2016

Reliability

Compatibility with all etching protocol

Tensile Bond Strength to Tooth (Self-Etch)





PB: PALFIQUE UNIVERSAL BOND
SU: Scotchbond Universal Adhesive
FU: Futura Bond U
CU: Clearfil Universal Bond

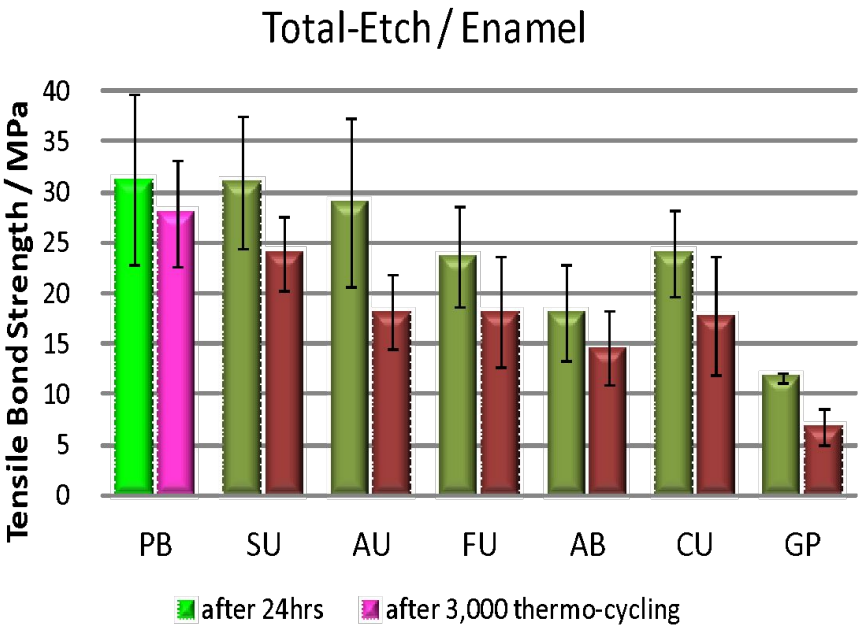
BF: PALFIQUE BOND
AU: Adhese Universal
AB: All-Bond Universal
GP: G-Premio Bond

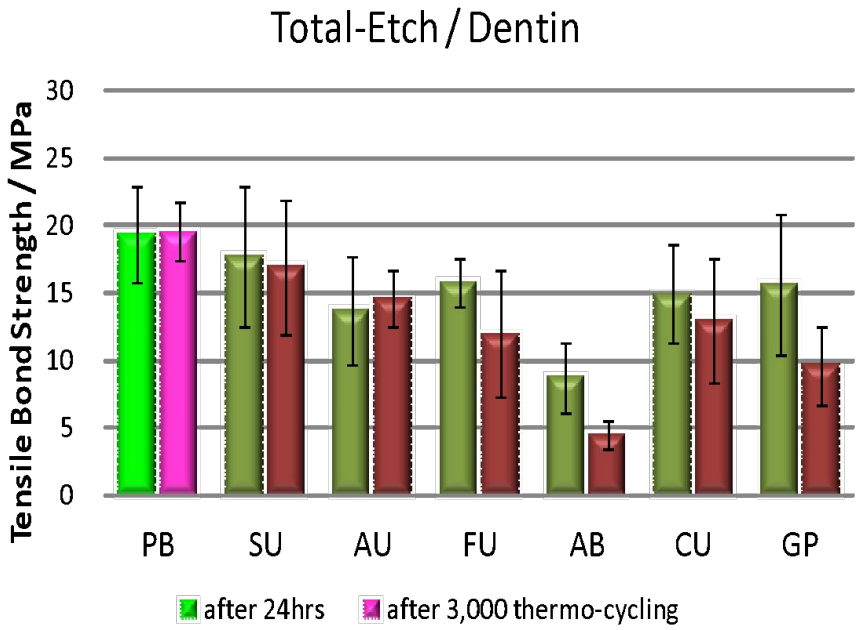
Tokuyama Dental R&D Data

Reliability

Compatibility with all etching protocol

Tensile Bond Strength to Tooth (Total-Etch)





PB: PALFIQUE UNIVERSAL BOND
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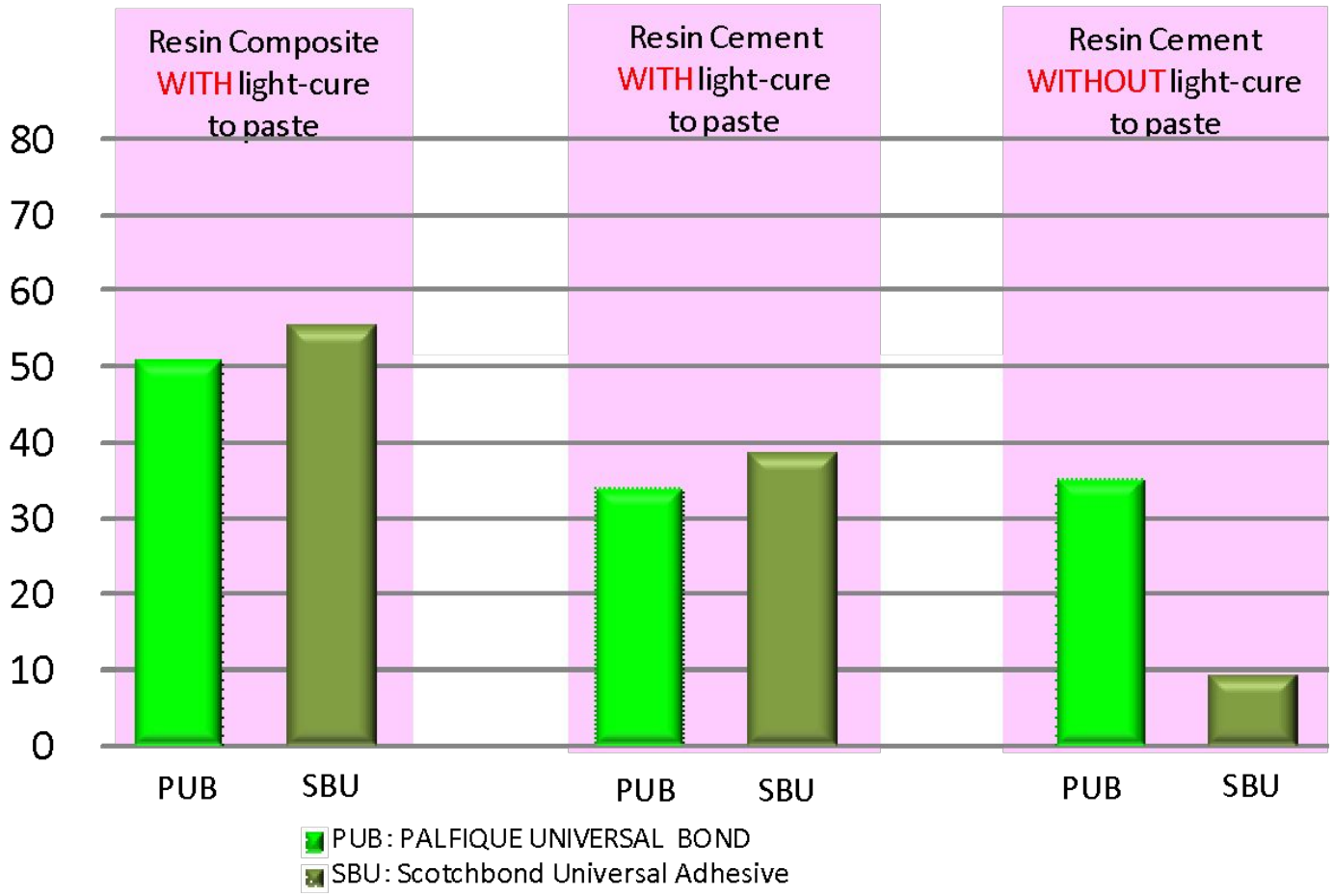
Tokuyama Dental R&D Data

Reliability

Compatibility with light-cured, self-cured and dual-cured composite materials

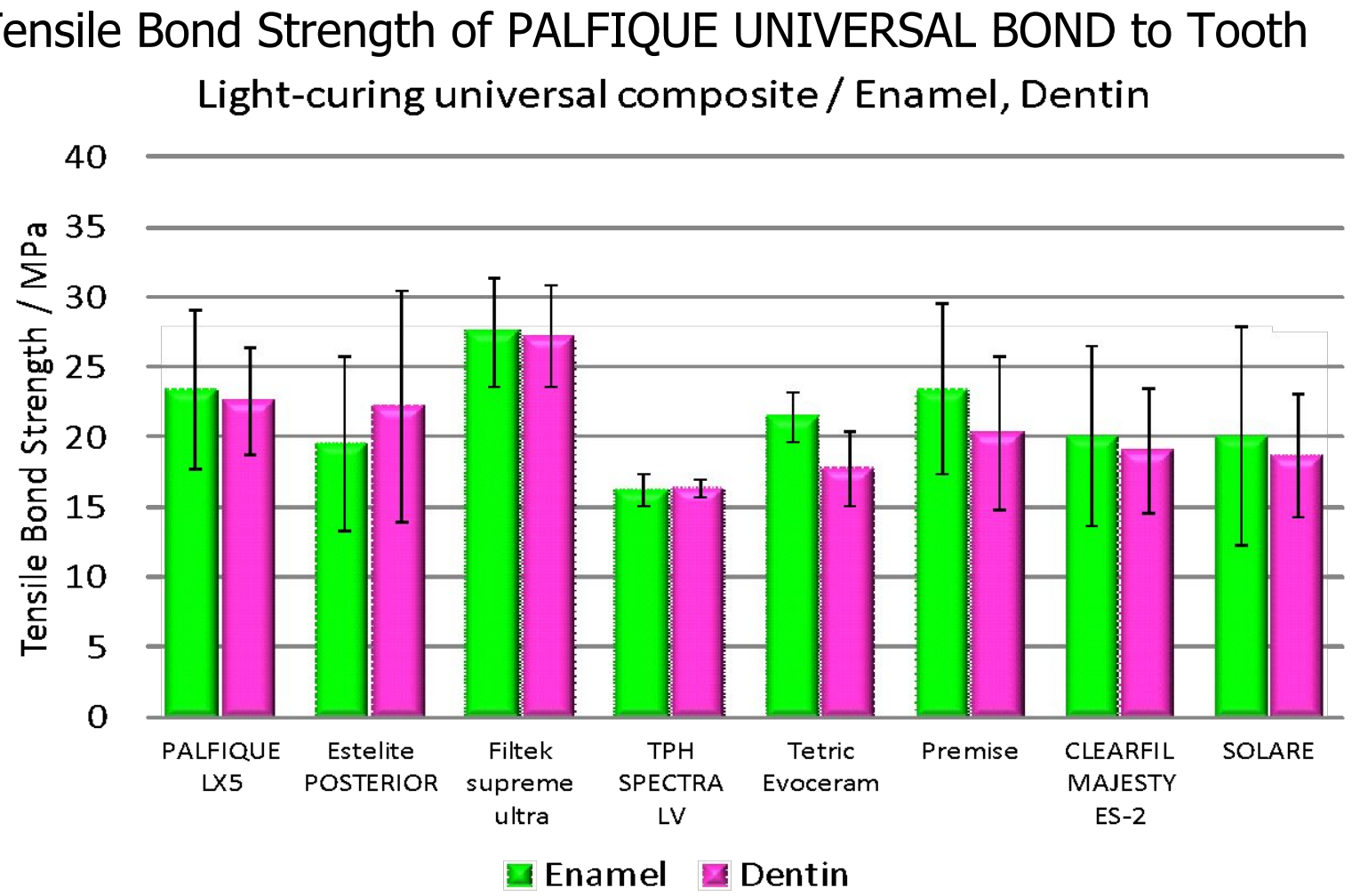
Micro-tensile Bond Strength to Dentin



Katsumata , Sano et al. Kagoshima University, Hokkaido University
The 35th Annual Meeting of Japan Society for Adhesive Dentistry, 2016

Reliability

Compatibility with light-cured, self-cured and dual-cured composite materials

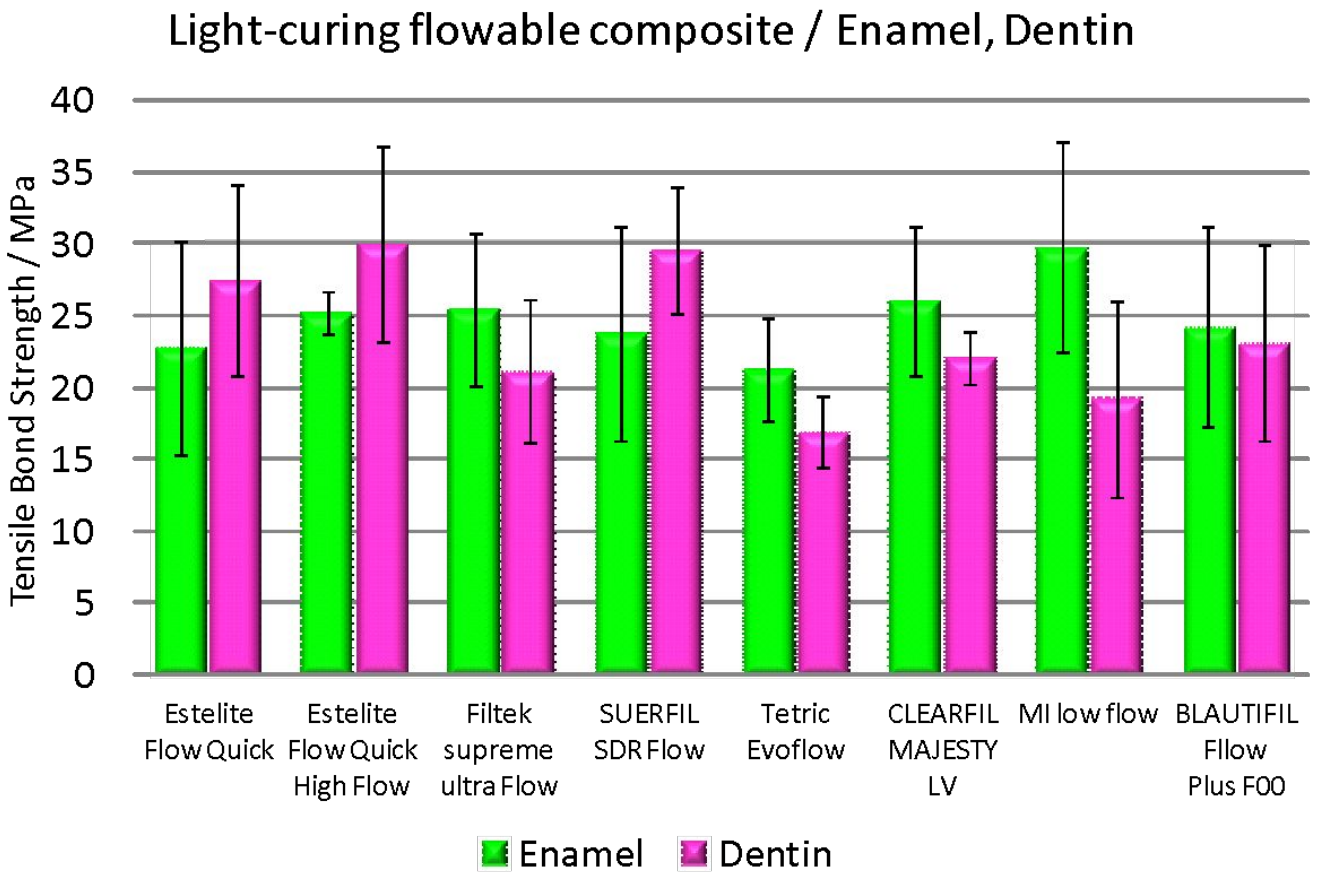


Tokuyama Dental R&D Data

Reliability

Compatibility with light-cured, self-cured and dual-cured composite materials

Tensile Bond Strength of PALFIQUE UNIVERSAL BOND to Tooth

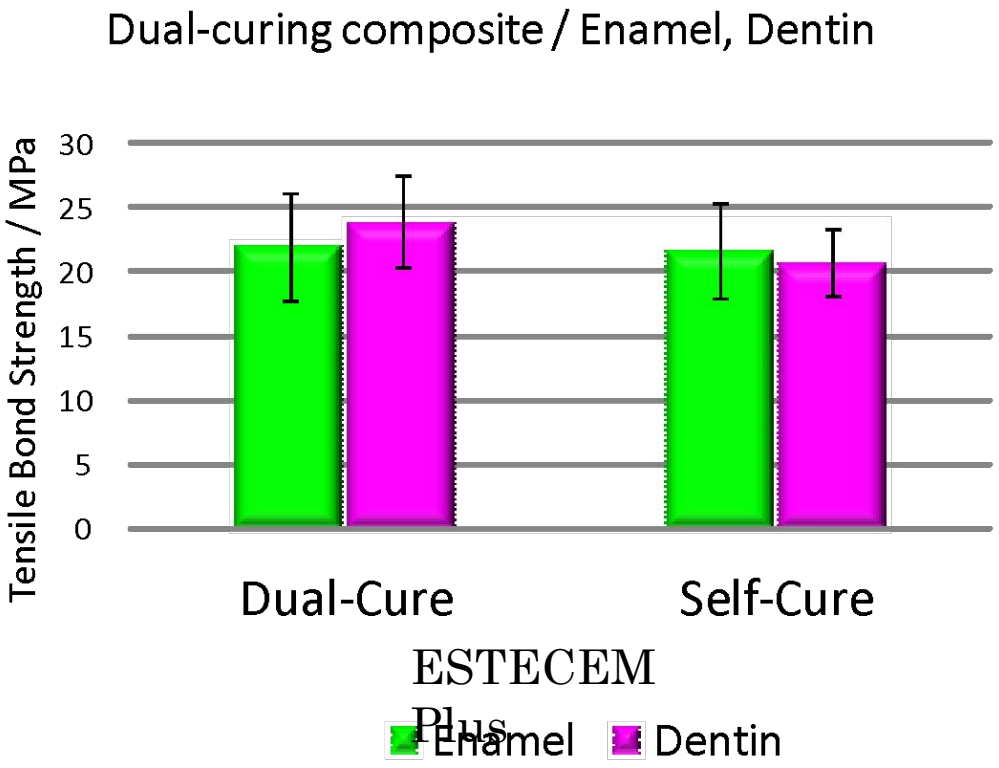


Tokuyama Dental R&D Data

Reliability

Compatibility with light-cured, self-cured and dual-cured composite materials

Tensile Bond Strength of PALFIQUE UNIVERSAL BOND to Tooth

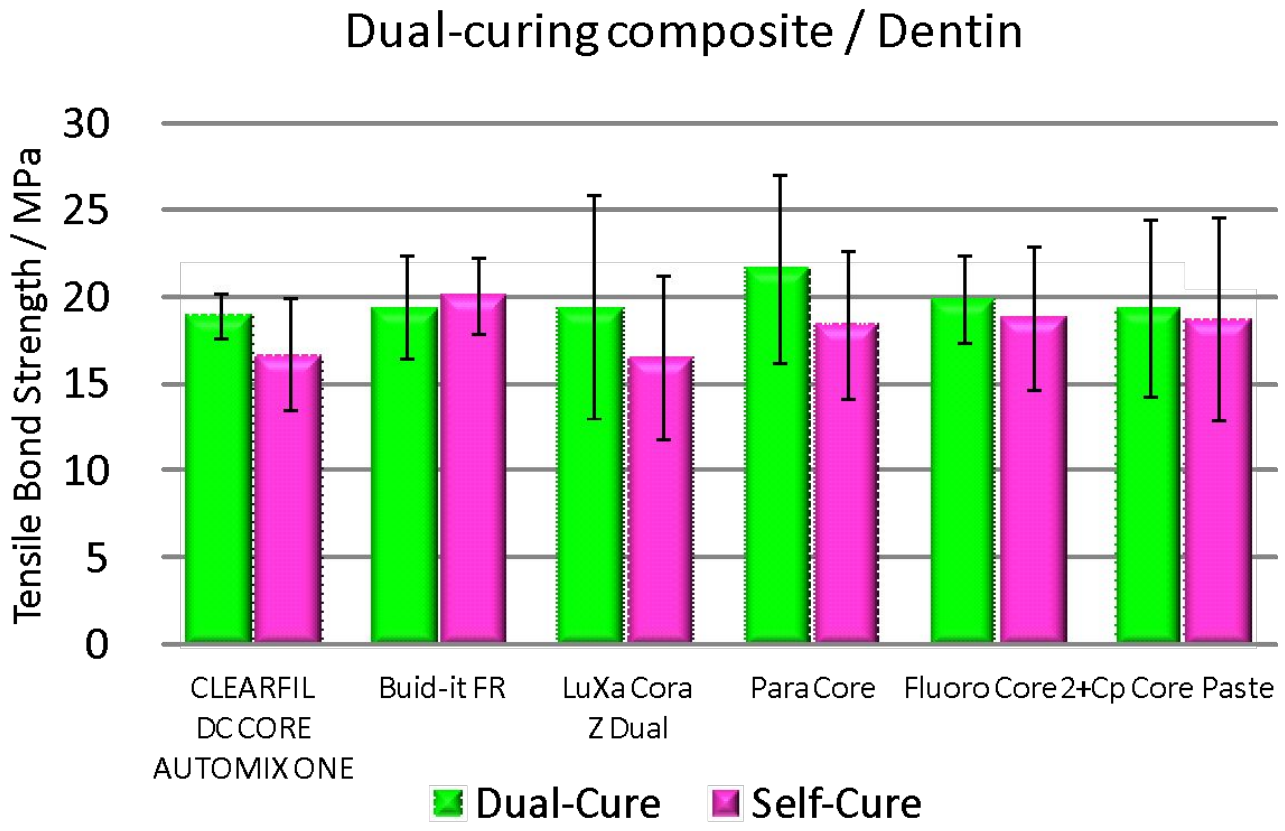


Tokuyama Dental R&D Data

Reliability

Compatibility with light-cured, self-cured and dual-cured composite materials

Tensile Bond Strength of PALFIQUE UNIVERSAL BOND to Dentin

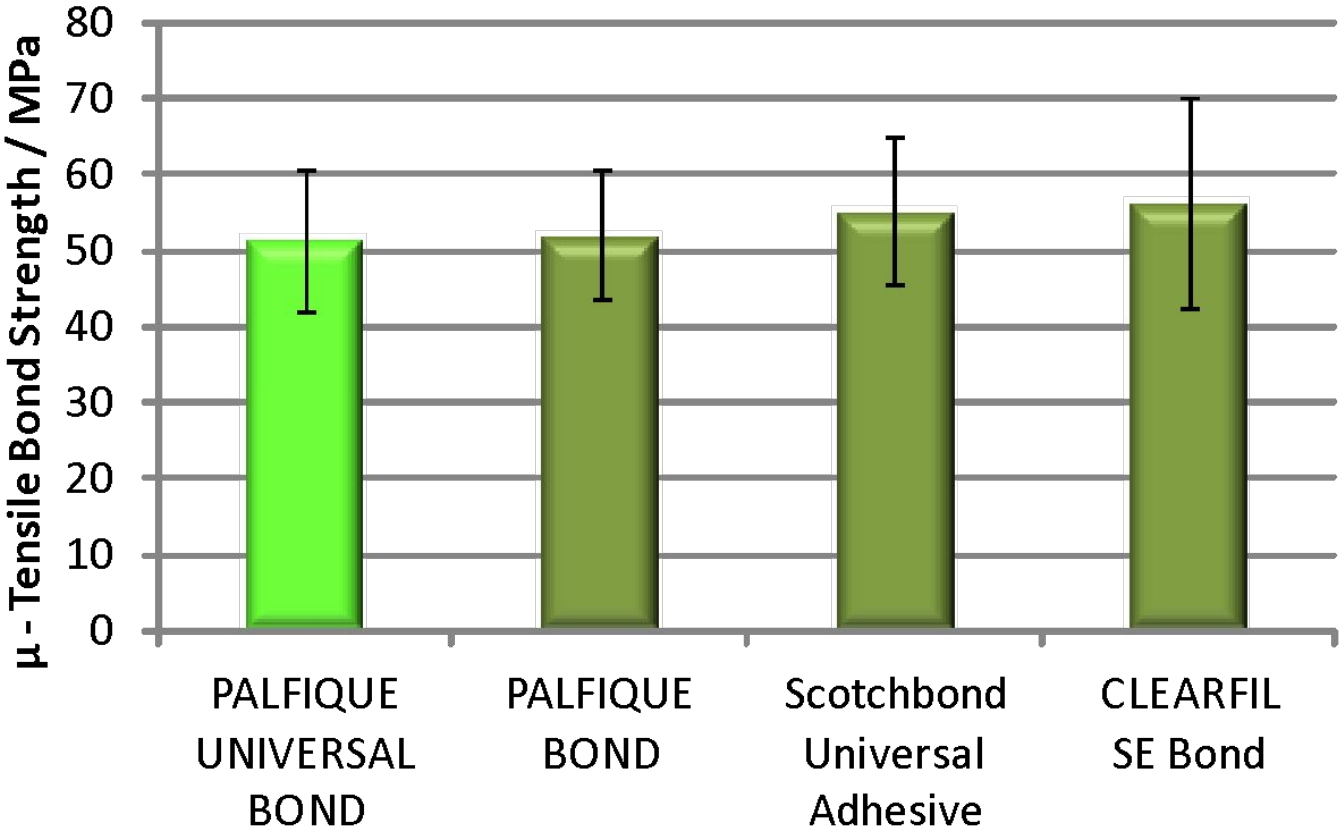


Tokuyama Dental R&D Data

Reliability

Direct Restoration

Micro-tensile Bond Strength to Dentin



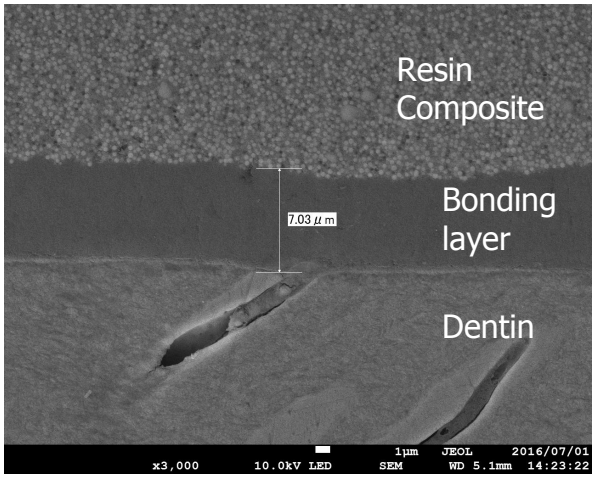
Tokuyama Dental R&D Data

Reliability

Direct Restoration

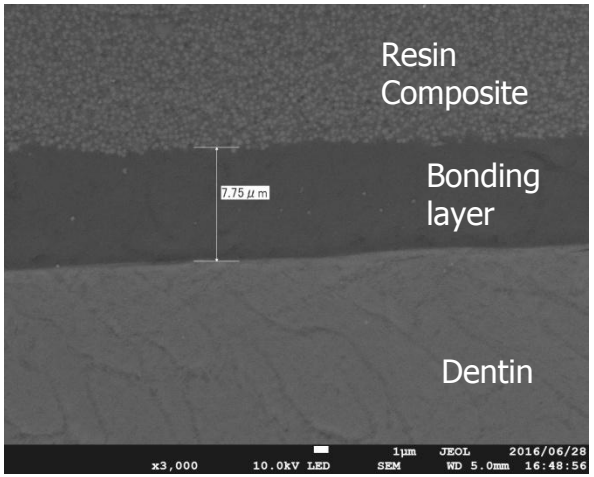
SEM Observation

Self-etch / Dentin



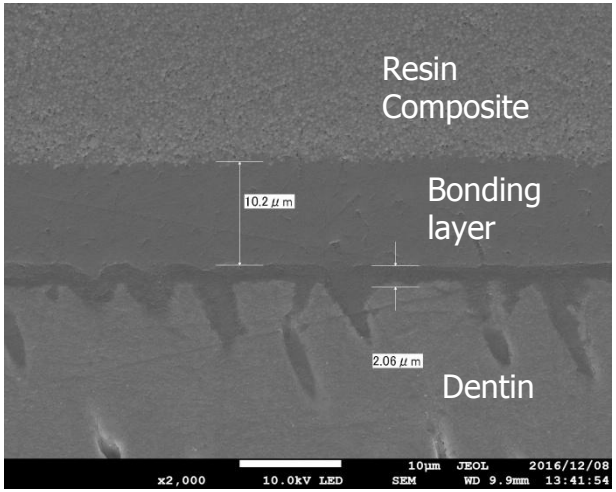
X 3000

Self-etch / Enamel



X 3000

Total-etch / Dentin



X 2000

Tokuyama Dental R&D Data

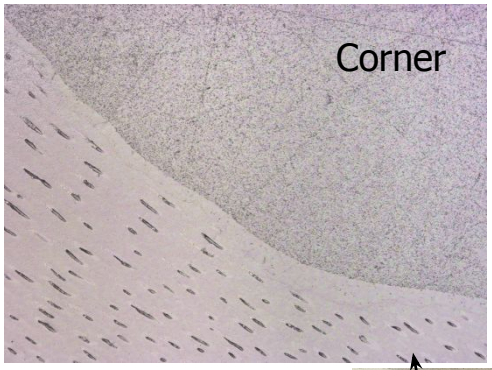
Reliability

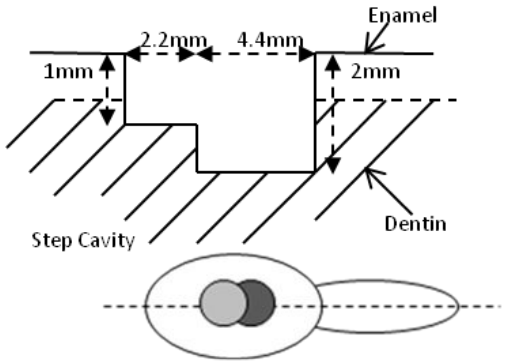
Direct Restoration

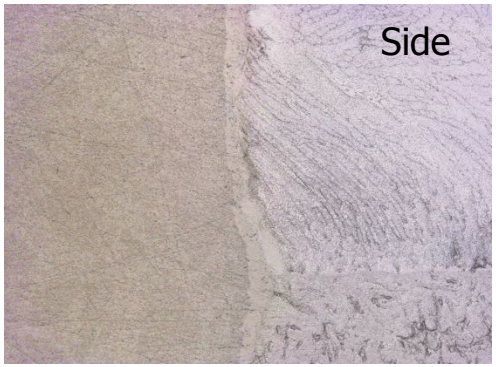
Cavity Adaptation

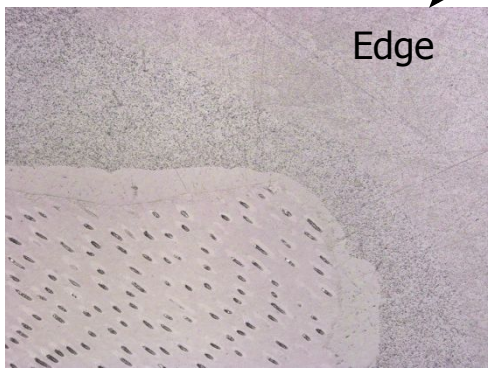
PALFIQUE UNIVERSAL BOND

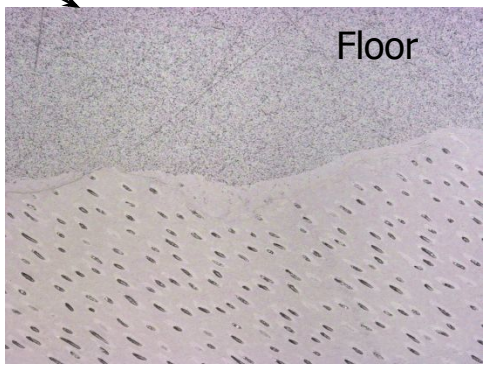
No Gap











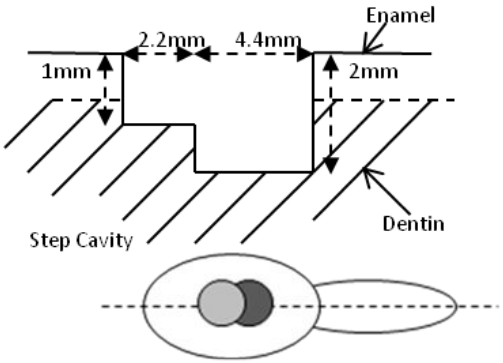
Tokuyama Dental R&D Data

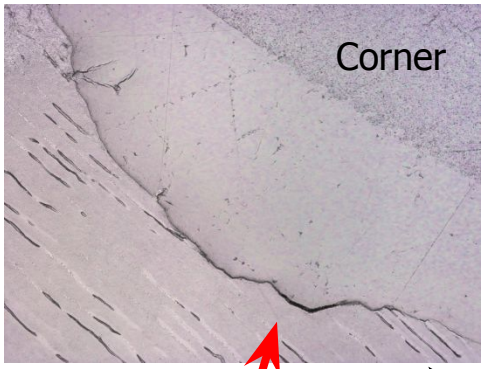
Reliability

Direct Restoration

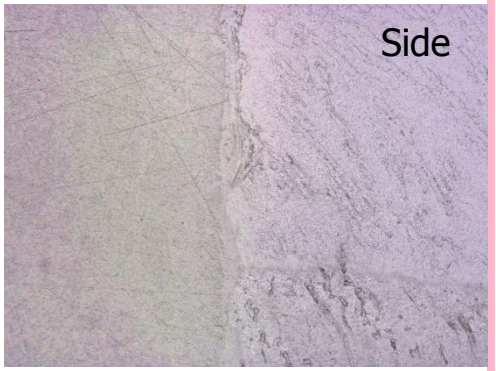
Cavity Adaptation

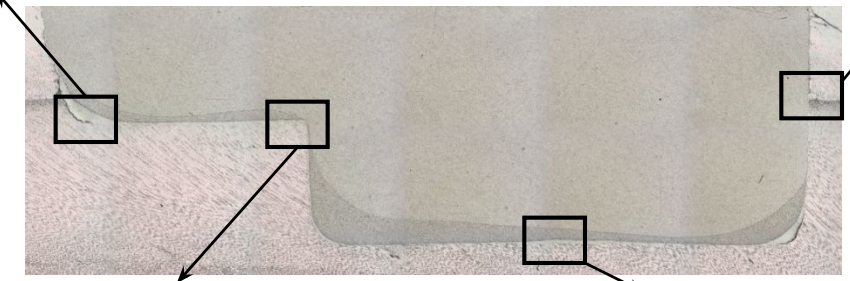
Scotchbond Universal Adhesive

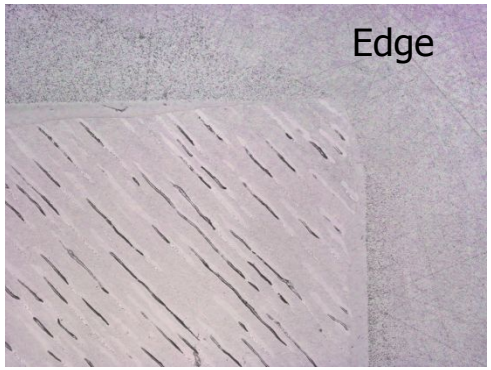


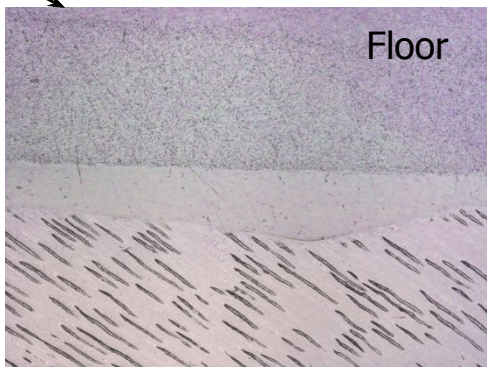


Gap







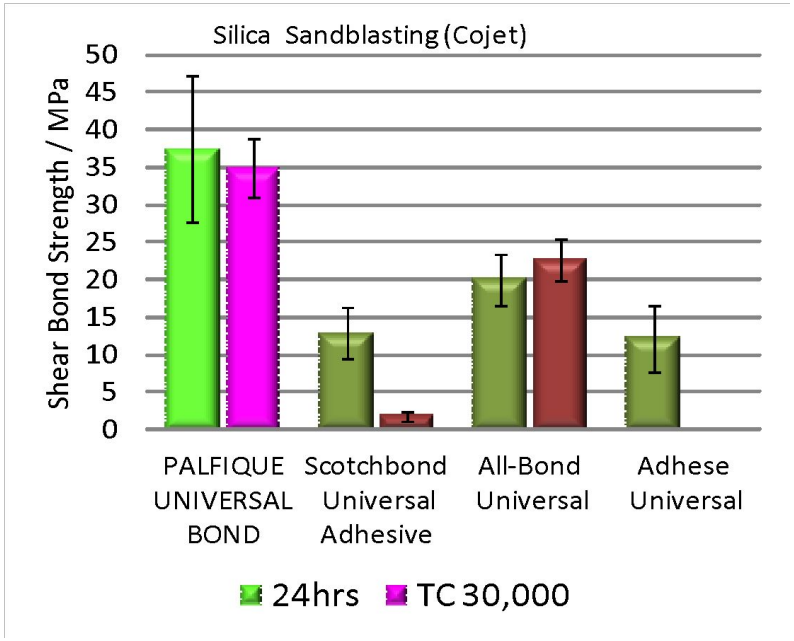


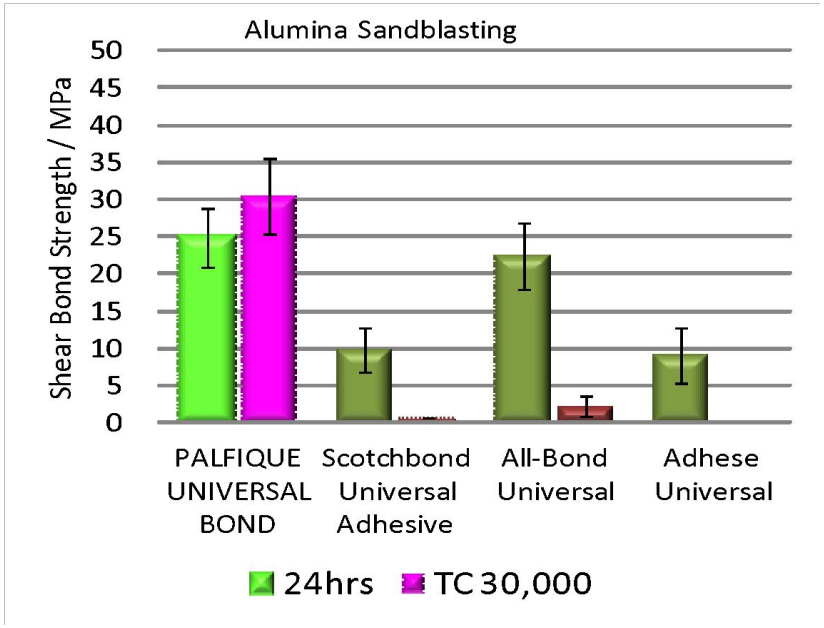
Tokuyama Dental R&D Data

Reliability

Intraoral Repair

Shear Bond Strength to Lithium Disilicate





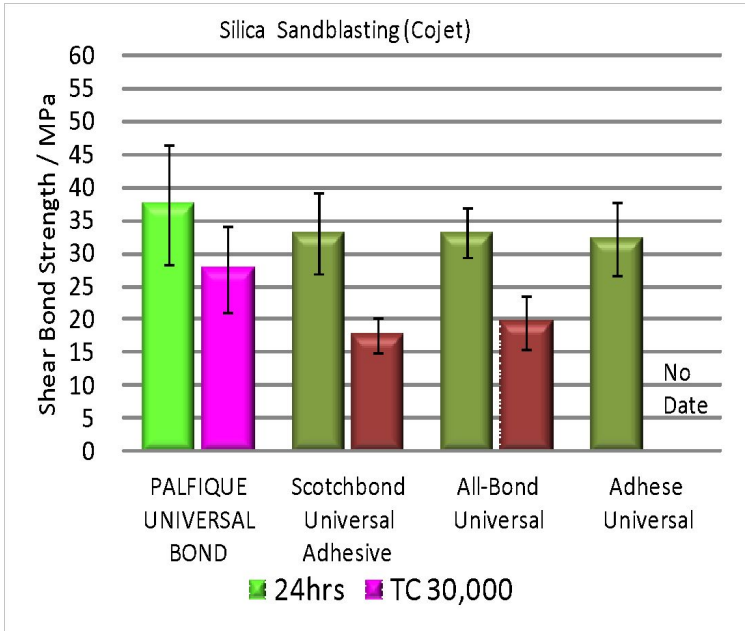
Lithium Disilicate : IPS e-max press/ Ivoclar Vivadent

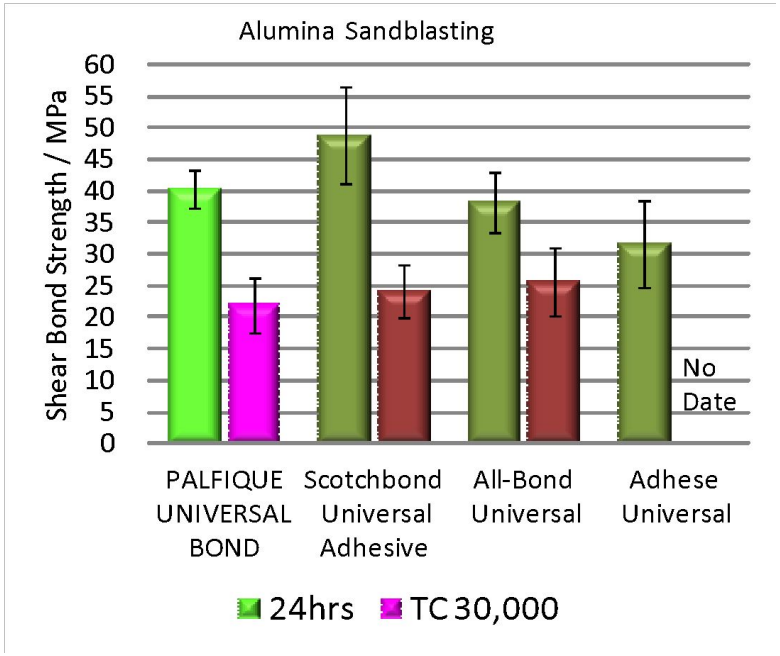
Ouchi, Miyazaki, et al. Nihon University
The 35th Annual Meeting of Japan Society for Adhesive Dentistry, 2016

Reliability

Intraoral Repair

Shear Bond Strength to Zirconia





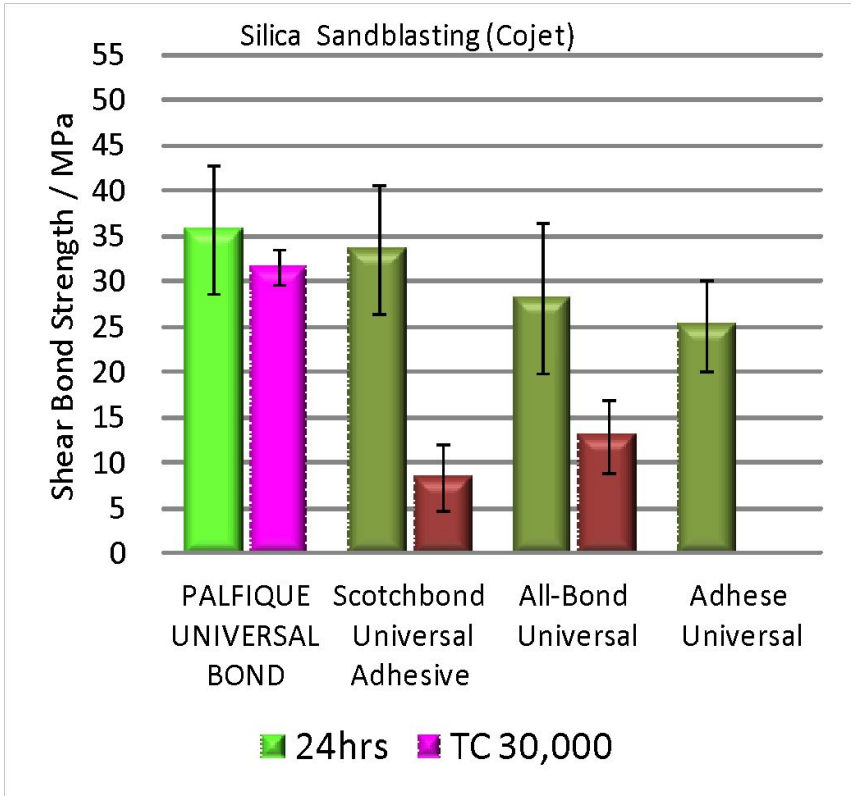
Zirconia : Japan Fine Ceramics

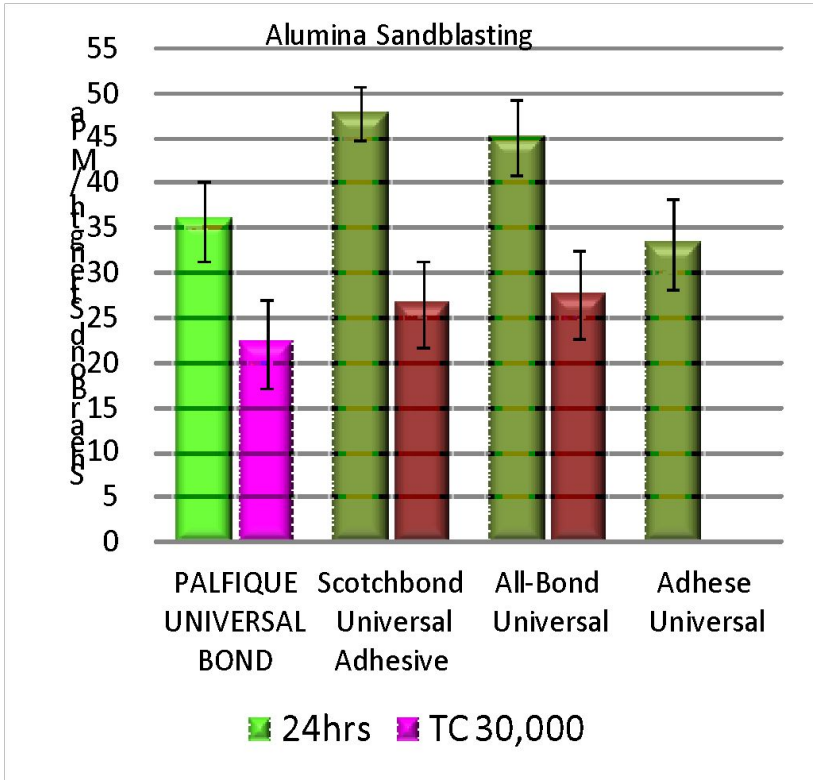
Ouchi, Miyazaki, et al. Nihon University
The 35th Annual Meeting of Japan Society for Adhesive Dentistry, 2016

Reliability

Intraoral Repair

Shear Bond Strength to Alumina





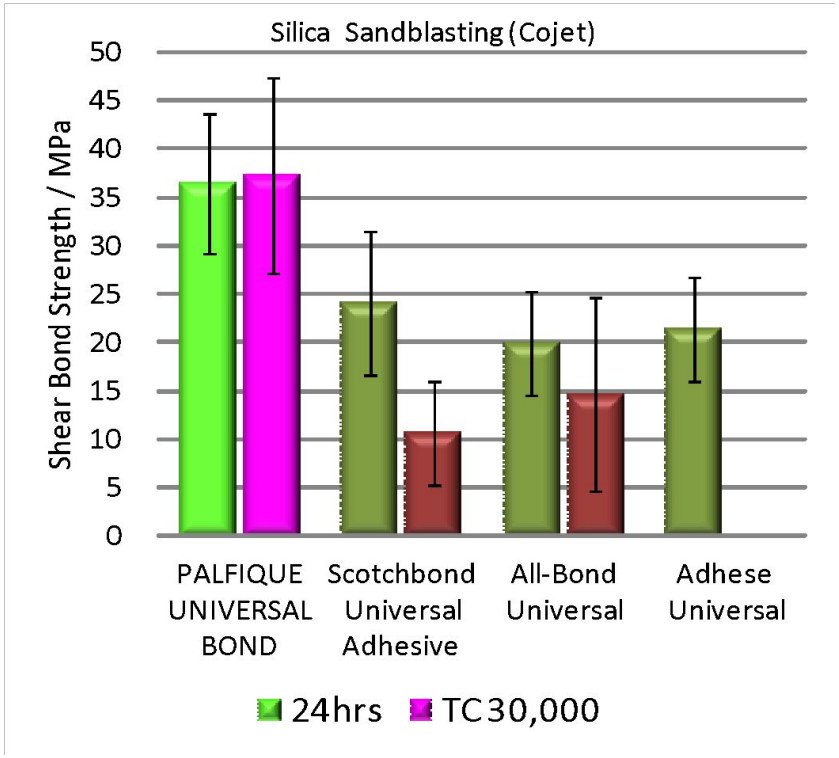
Alumina : Japan Fine Ceramics

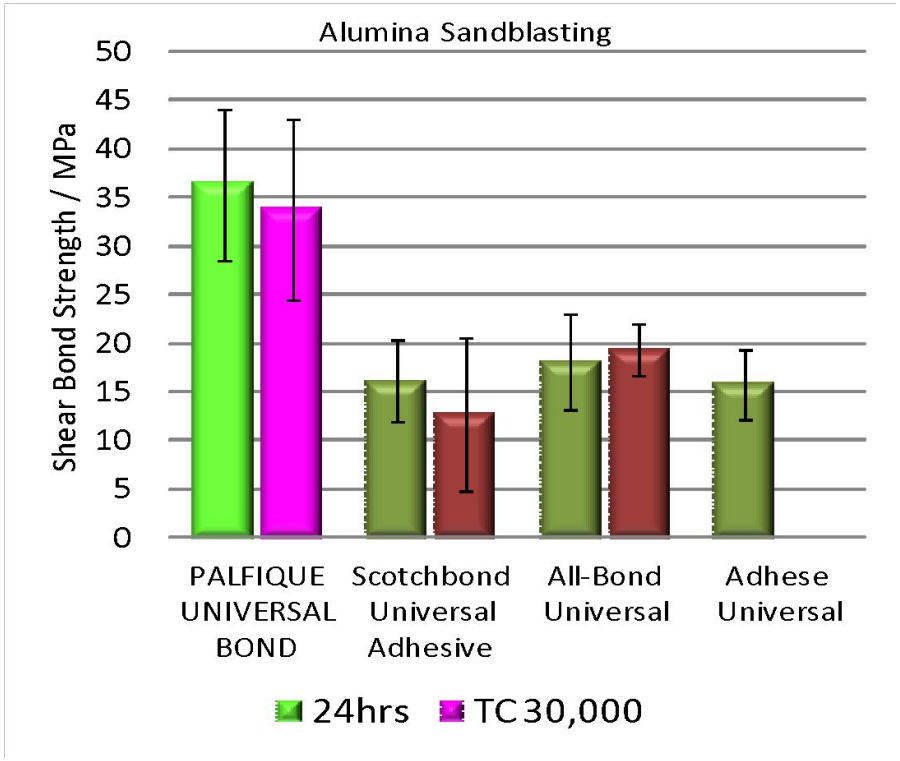
Ouchi, Miyazaki, et al. Nihon University
The 35th Annual Meeting of Japan Society for Adhesive Dentistry, 2016

Reliability

Intraoral Repair

Shear Bond Strength to Precious Metal





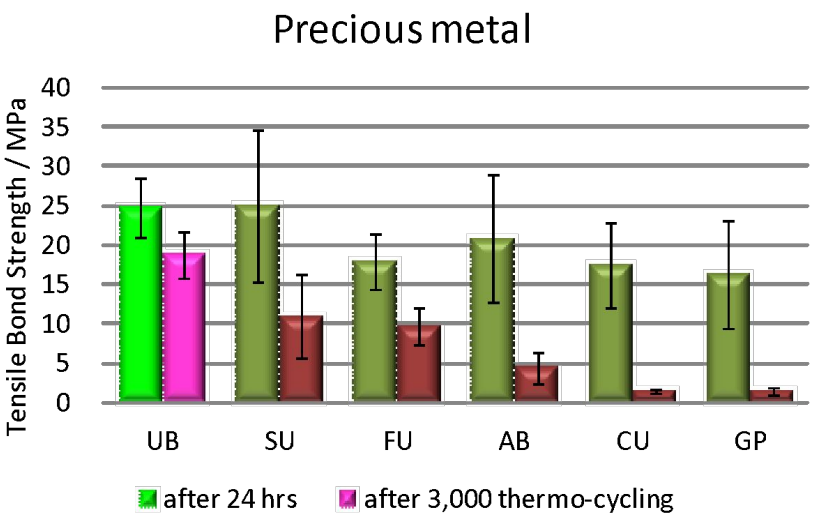
Precious Metal : SuperCrystal KP5 / Yamakin

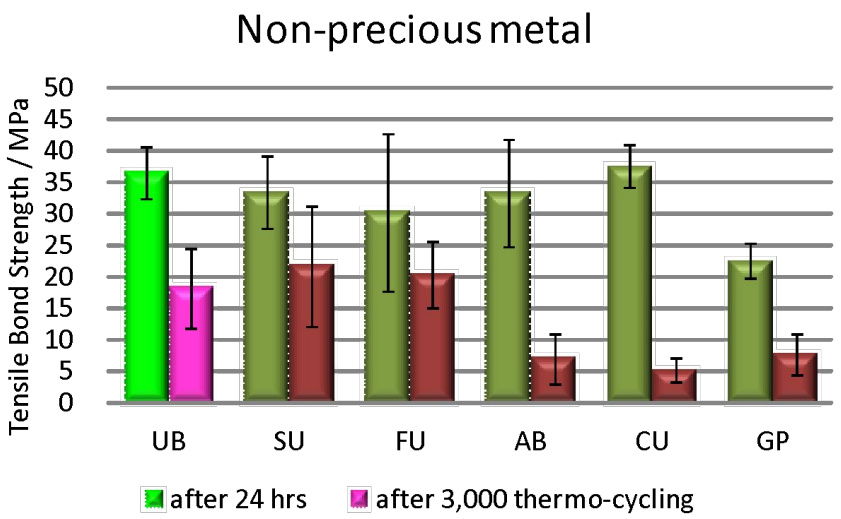
Ouchi, Miyazaki, et al. Nihon University
The 35th Annual Meeting of Japan Society for Adhesive Dentistry, 2016

Reliability

Intraoral Repair

Tensile Bond Strength to Precious Metal / Non-Precious Metal





UB: PALFIQUE UNIVERSAL BOND
FU: Futura Bond U
CU: Clearfil Universal Bond

SU: Scotchbond Universal Adhesive
AB: All-Bond Universal
GP: G-Premio Bond

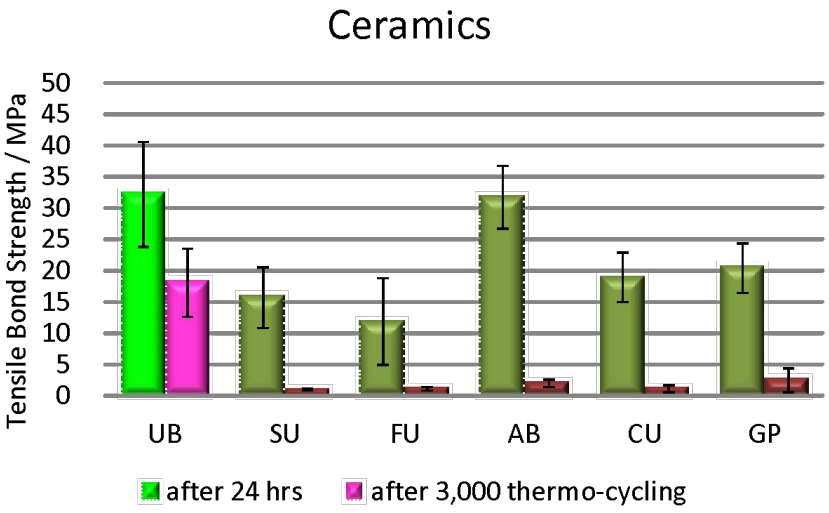
Precious Metal : CASTMASTER12S/ Tokuyama Dental
Non-Precious Metal : ICROME / Tokuyama Dental

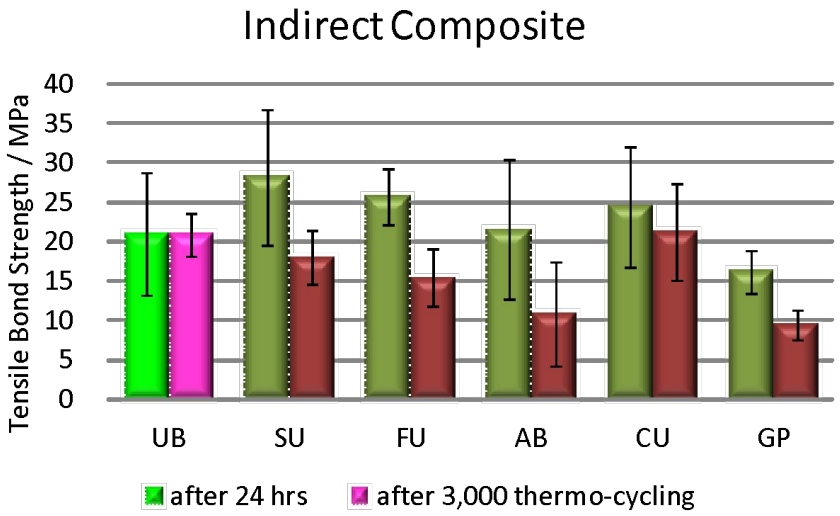
Tokuyama Dental R&D Data

Reliability

Intraoral Repair

Tensile Bond Strength to Ceramics / Indirect Composite





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AB: All-Bond Universal
GP: G-Premio Bond

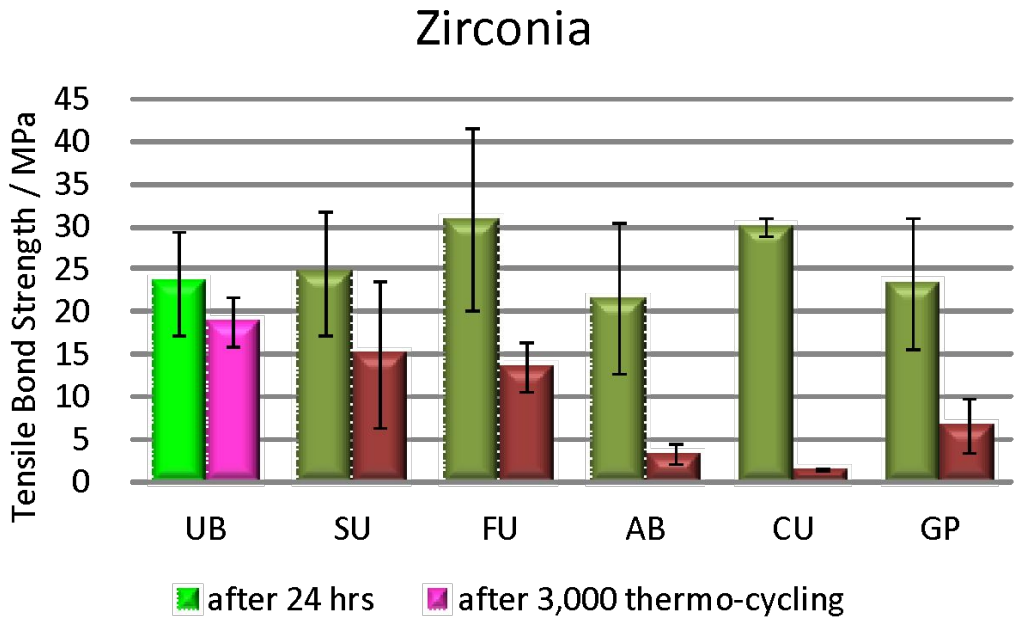
Ceramics : Super Porcelain AAA / Kuraray Noritake Dental
Indirect Composite : PEARLESTE / Tokuyama Dental

Tokuyama Dental R&D Data

Reliability

Intraoral Repair

Tensile Bond Strength to Zirconia



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AB: All-Bond Universal
GP: G-Premio Bond

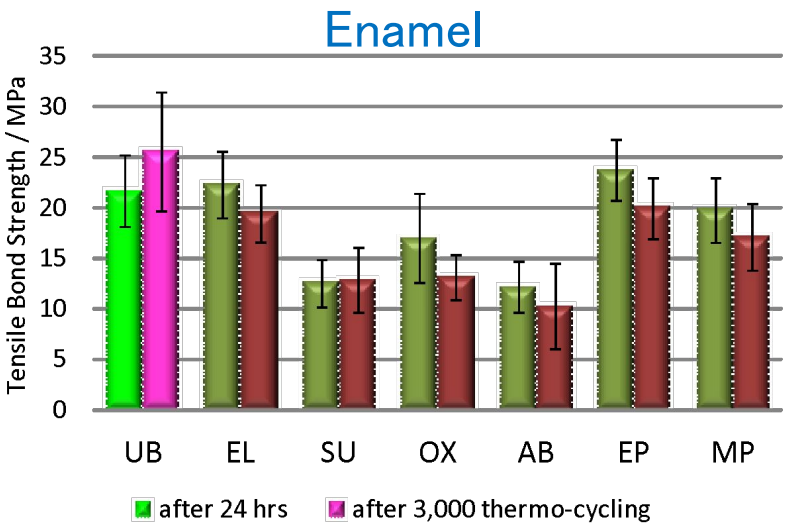
Zirconia : TZ-3Y-E / Toso

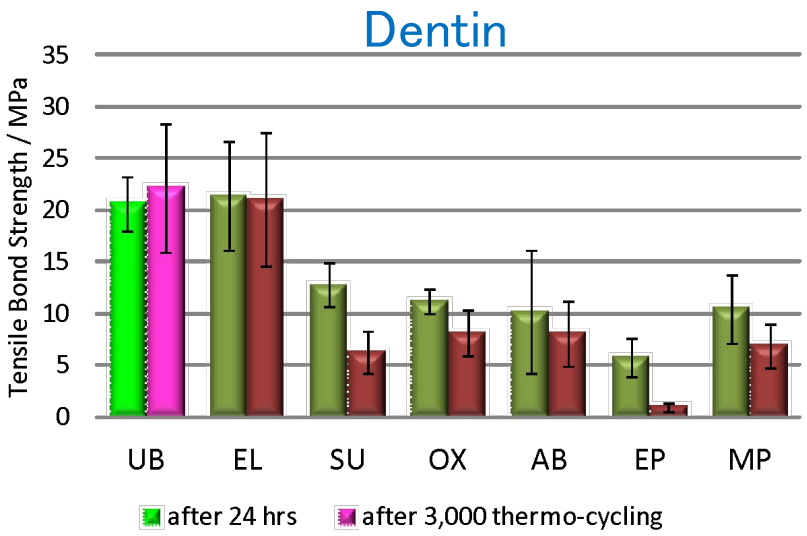
Tokuyama Dental R&D Data

Reliability

Indirect Restoration

Tensile Bond Strength to Tooth





UB: PALFIQUE UNIVERSAL BOND / ESTECEM Plus
EL: ESTELINK / ESTECEM
SU: Scotchbond Universal Adhesive / Rely X Ultimate
OX: Opti Bond XTR / NX3
AB: All-Bond Universal / Duo-Link
EP: ED primer / Panavia F2.0
MP: Multilink Primer / Multilink Automix

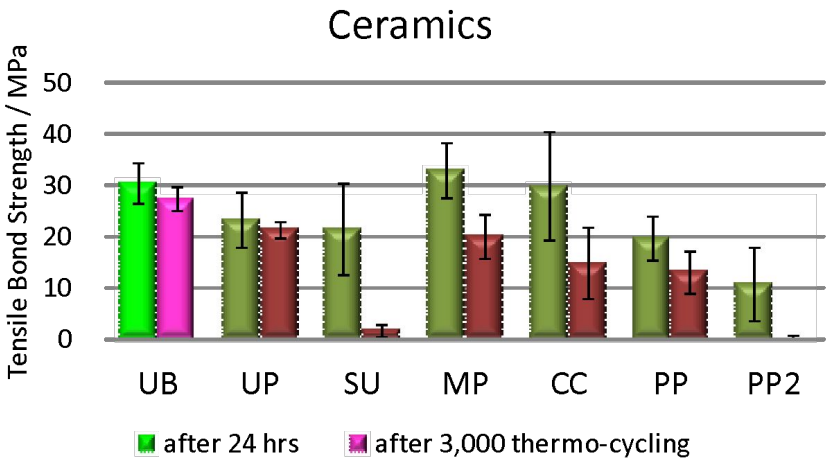
Tokuyama Dental R&D Data

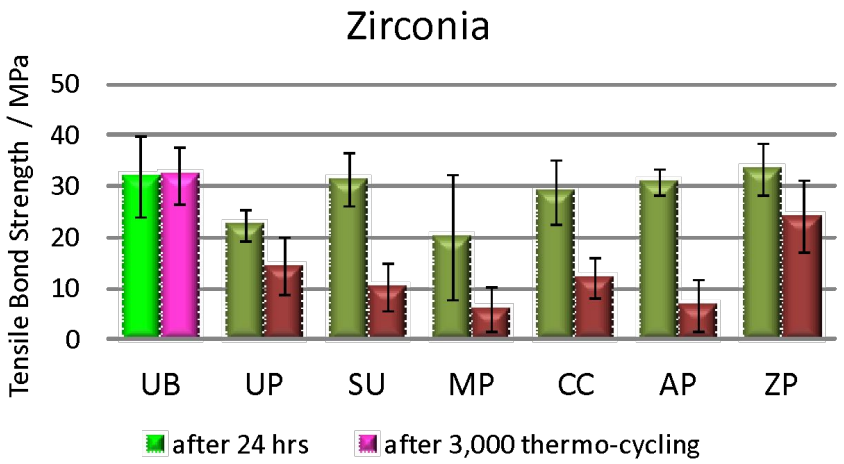
Reliability

Indirect Restoration

Used as a primer for silica-based, zirconia based and metallic restorations

Tensile Bond Strength to Ceramics, Zirconia





UB: PALFIQUE UNIVERSAL BOND / ESTECEM Plus
UP: TOKUYAMA UNIVERSAL PRIMER / ESTECEM
SU: Scotchbond Universal Adhesive / Rely X Ultimate
MP: Monobond Plus / Multilink Automix
CC: Clearfil Ceramic Primer Plus / Panavia V5
PP: Porcelain primer / ResiCem
PP2:Porcelain primer / Duo-Link

UB: PALFIQUE UNIVERSAL BOND / ESTECEM Plus
UP: TOKUYAMA UNIVERSAL PRIMER / ESTECEM
SU: Scotchbond Universal Adhesive / Rely X Ultimate
MP: Monobond Plus / Multilink Automix
CC: Clearfil Ceramic Primer Plus / Panavia V5
AP: AZ-primer / ResiCem
ZP:Z-Prime Plus / Duo-Link

Ceramics : Super Porcelain AAA / Kuraray Noritake Dental
Zirconia : TZ-3Y-E / Toso

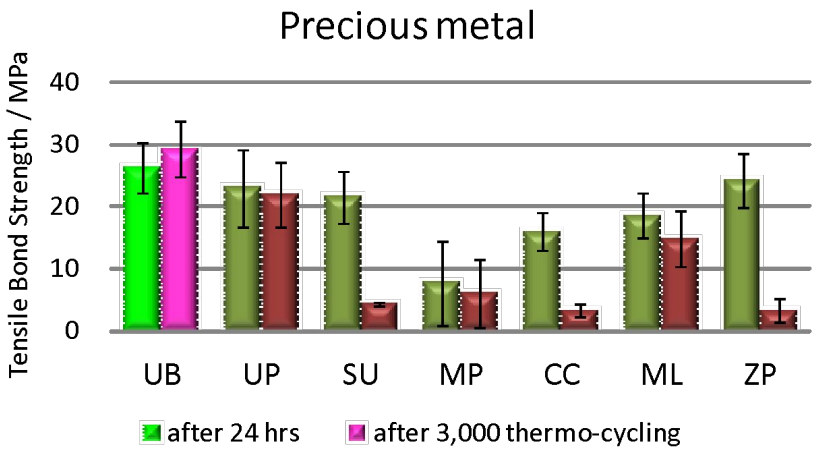
Tokuyama Dental R&D Data

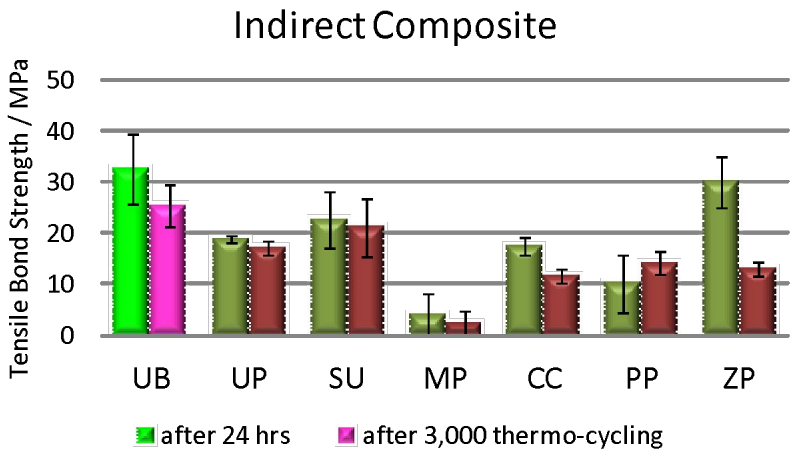
Reliability

Indirect Restoration

Used as a primer for silica-based, zirconia based and metallic restorations

Tensile Bond Strength to Metal, Indirect composite





UB: PALFIQUE UNIVERSAL BOND / ESTECEM Plus
UP: TOKUYAMA UNIVERSAL PRIMER / ESTECEM
SU: Scotchbond Universal Adhesive / Rely X Ultimate
MP: Monobond Plus / Multilink Automix
CC: Clearfil Ceramic Primer Plus / Panavia V5
ML: Metallink / ResiCem
ZP: Z-Prime Plus / Duo-Link

UB: PALFIQUE UNIVERSAL BOND / ESTECEM Plus
UP: TOKUYAMA UNIVERSAL PRIMER / ESTECEM
SU: Scotchbond Universal Adhesive/ Rely X Ultimate
MP: Monobond Plus / Multilink Automix
CC: Clearfil Ceramic Primer Plus / Panavia V5
PP: Porcelain primer / ResiCem
ZP:Z-Prime Plus / Duo-Link

Precious Metal : CASTMASTER12S/ Tokuyama Dental
Indirect Composite : PEARLESTE / Tokuyama Dental

Tokuyama Dental R&D Data

Composition

BOND A

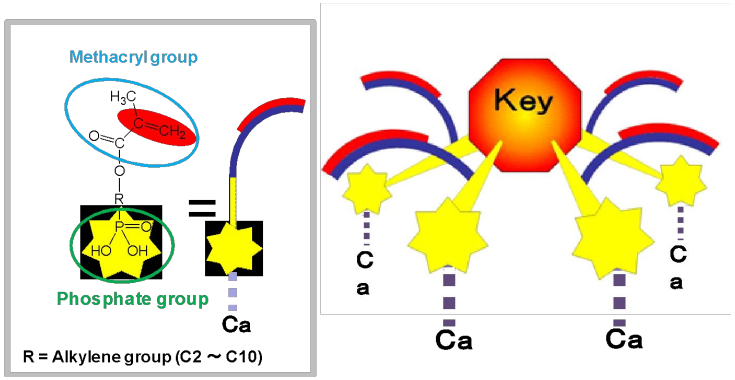
Basic components	Function
Phosphoric acid monomer (New 3D-SR monomer)	Adhesion for tooth Formation of bonding layer Adhesion for zirconia , alumina, and non-precious metal
MTU-6	Adhesion for precious metal
HEMA	Penetration into the tooth substance Formation of bonding layer
Bis-GMA	Formation of bonding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

BOND B

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

Adhesion Mechanism

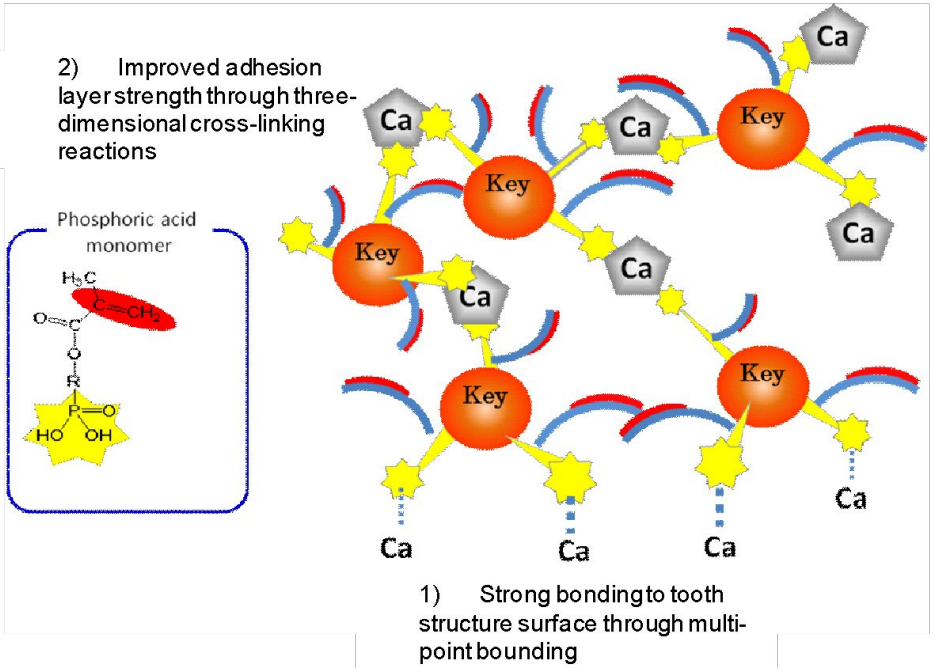
Mechanism of adhesion to tooth



3rd Generation 3D-SR Monomer

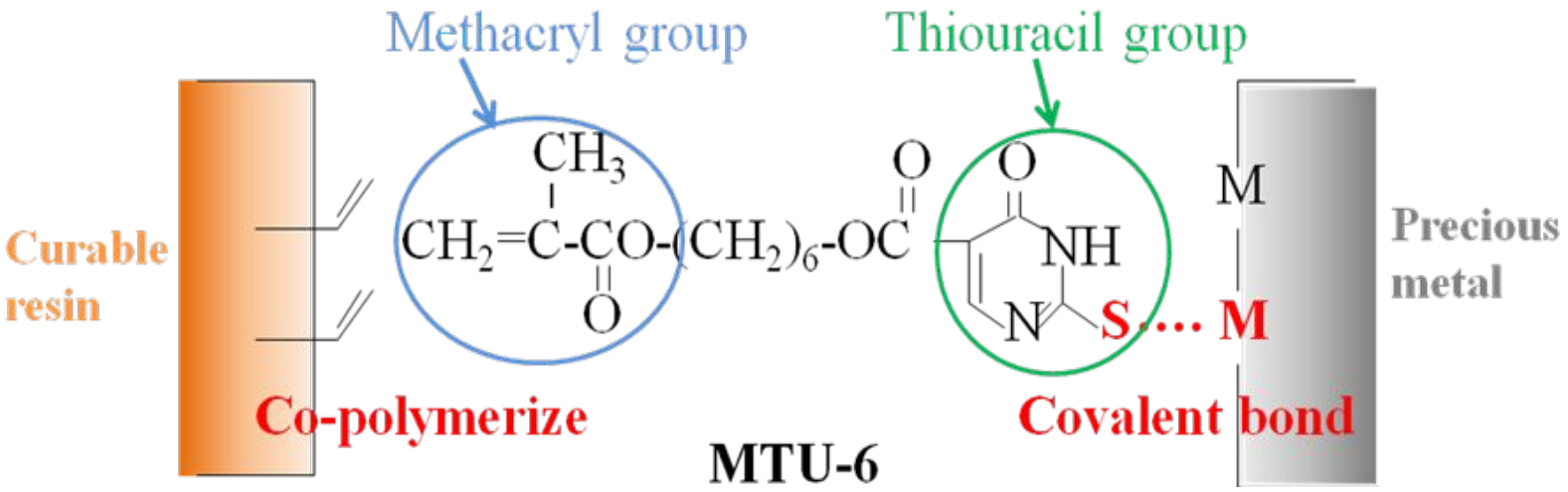
The 3D-SR monomer have several functional groups that can interact with calcium and polymerizing groups per molecule.

PALFIQUE UNIVERSAL BOND has an enhanced response to tooth calcium and durability by using a new 3rd generation 3D-SR monomer.



Adhesion Mechanism

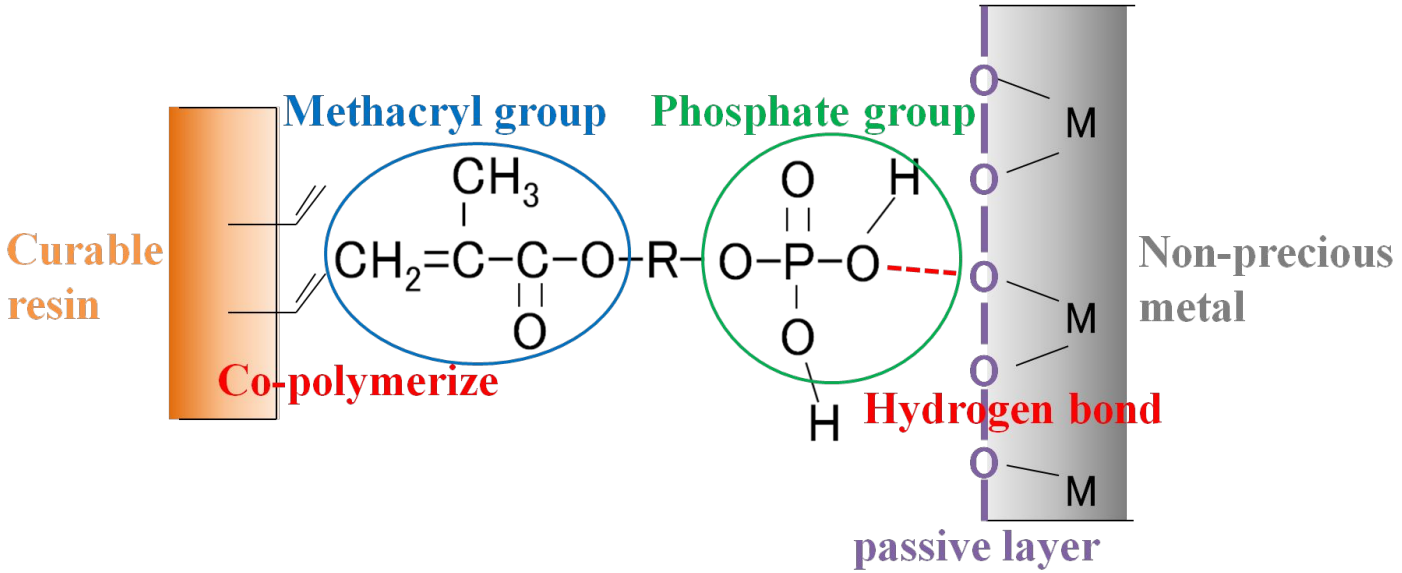
Mechanism of adhesion to precious metal



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

Adhesion Mechanism

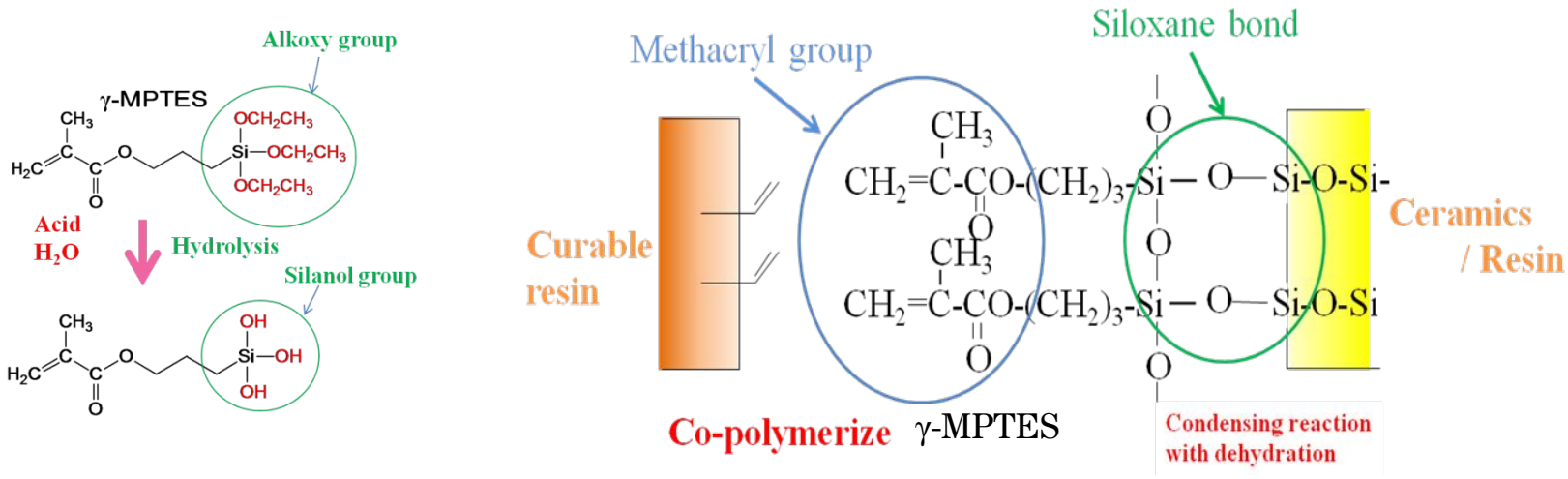
Mechanism of adhesion to non-precious metal



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

Adhesion Mechanism

Mechanism of adhesion to glass-ceramics/resin

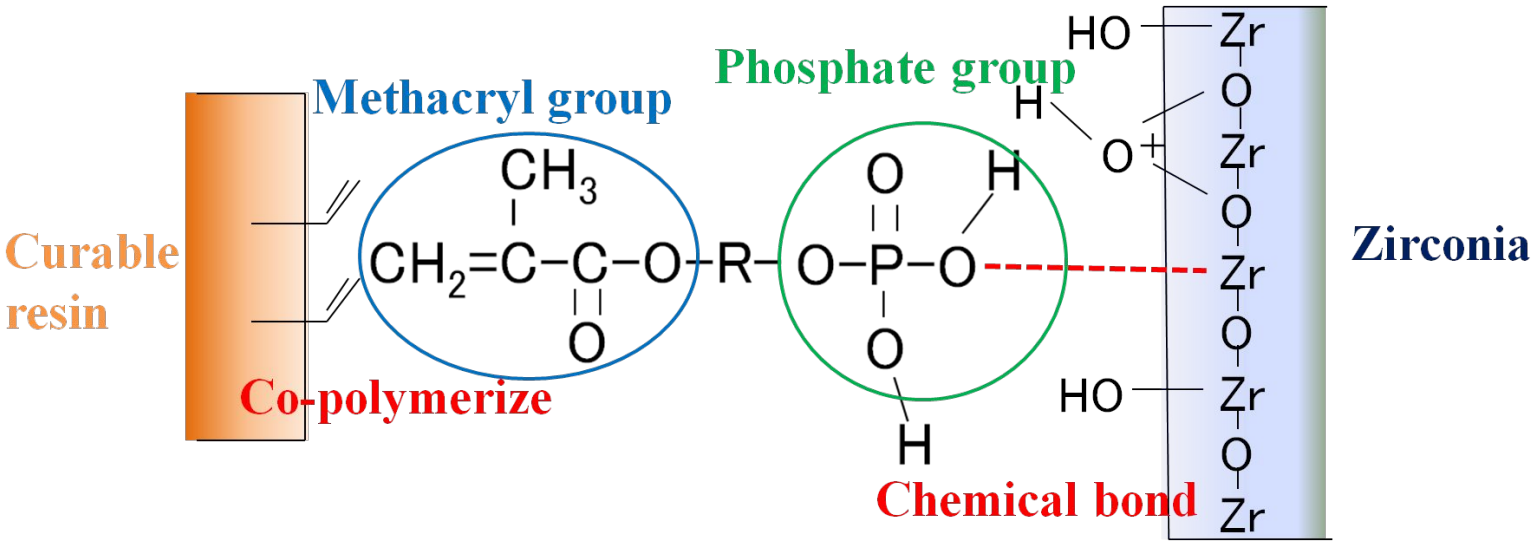


The alkoxy group in γ-MPTES reacts with water to form a silanol group and next, a siloxane bond is formed by a dehydration and condensation reaction with the silanol group on the ceramic surface. Additionally, the methacryl group co-polymerizes with monomers in dental curable materials

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.

Adhesion Mechanism

Mechanism of adhesion to zirconia/alumina

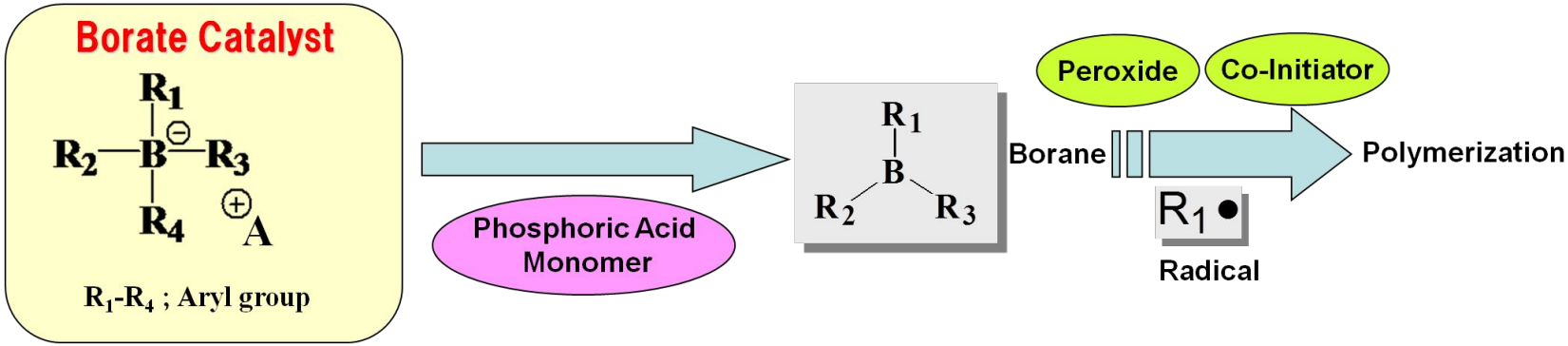


It is believed that the phosphate group of the new 3D-SR monomer forms chemical bonds with the zirconia/alumina surface for adhesion.

Adhesion Mechanism

Mechanism of polymerization initiator "Contact Cure"

BoSE technology



BoSE 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.

Excellent polymerization under acidic conditions made it possible to cover self-curing as well as light-curing and dual-curing type resin materials.

Indications

- Direct anterior and posterior restorations with light-curing, dual-curing, and self-curing composite materials
- Intraoral repair of composite restorations, porcelain fused to metal, metal, and all-ceramic restorations without an additional primer
- Cementation of indirect restorations and veneers when combined with light-cure, dual-cure, and self-curing resin cements
  - Bonding of core build-ups made of core build-up materials
  - Bonding of denture resin to metal base, clasp or attachment
  - Repair of denture with metal base, clasp or attachment
- Bonding of opaque resin to a metal base in the fabrication of resin-faced stainless steel crowns

Tips

Mixing Well for PALFIQUE UNIVERSAL BOND

Mixing Well

Complete the application within 1 minute of dispensing

Disposable Mixing Well

Complete the application within 3 minutes of dispensing

PALFIQUE UNIVERSAL BOND KIT includes two types of mixing wells.
The rubber mixing well should be used for a single restoration, whereas the disposable mixing well should be used for multiple restorations.
Each mixing well provides a different working time; 1 minute with the rubber mixing well and 3 minutes with the disposable mixing well.

vs Competitive Products

vs Scotchbond Universal Adhesive / 3MESPE

Advantages
+ Universal use
+ Adhesiveness
(especially, to ceramics)

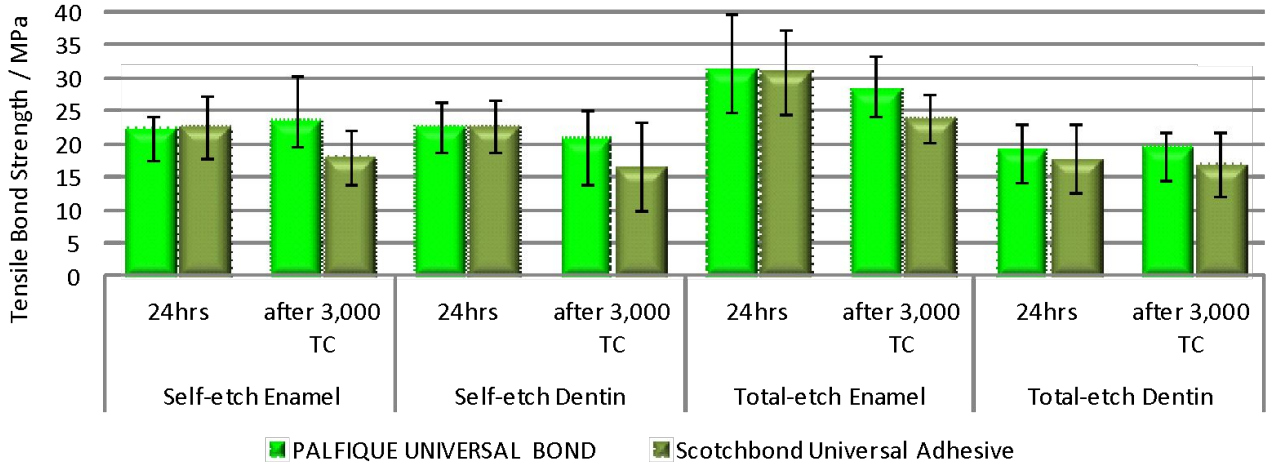
Disadvantage
+ 2 Bottles
+ Refrigeration required
+ Do not work as a desensitizer

	Total-etch, Self-etch, Selective-etch	Compatible with all light-curing, dual-curing or self-curing composites	Indirect restorations	Intraoral Repair	Primer for prosthesis
PALFIQUE UNIVERSAL BOND	✓	✓	✓	✓	✓
Scotchbond Universal Adhesive	✓	▲	▲	✓	▲*

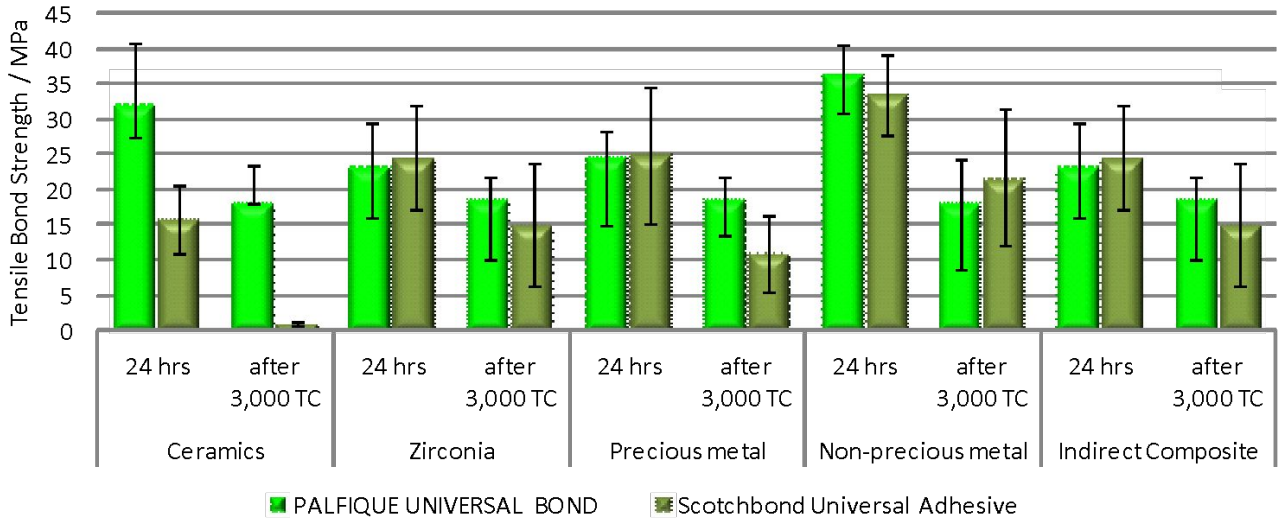
* Requires Dual Cure Activator

vs Scotchbond Universal Adhesive / 3MESPE

Bond Strength to Tooth



Bond Strength to Prosthetic materials



Tokuyama Dental R&D Data

vs Adhese Universal / Ivoclar Vivadent

Advantages
+ Universal use
+ Adhesiveness
(especially, Self-etch Enamel)

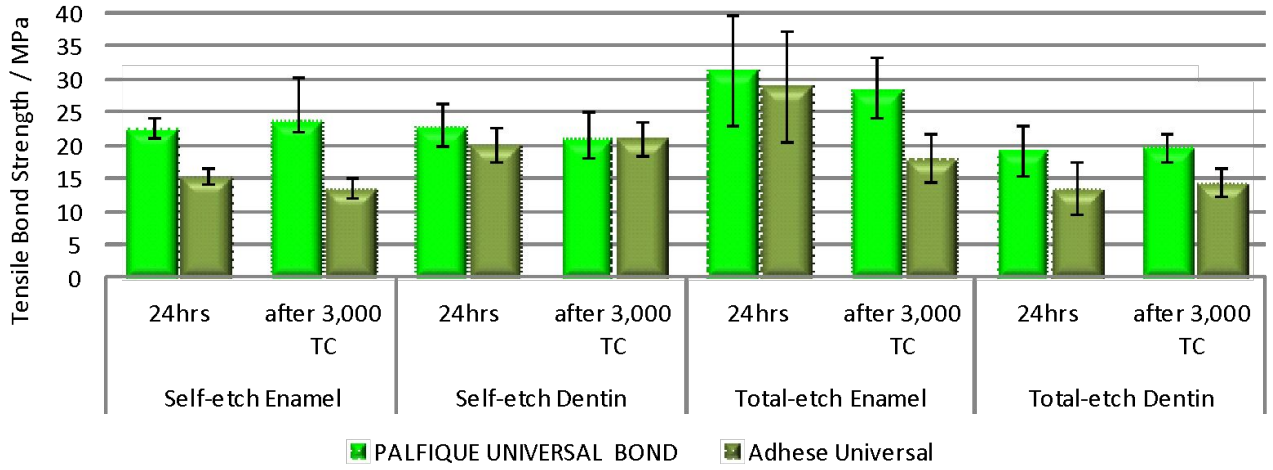
Disadvantage
+ 2 Bottles
+ Refrigeration required
+ Do not work as a desensitizer

	Total-etch, Self-etch, Selective-etch	Compatible with all light-curing, dual-curing or self-curing composites	Indirect restorations	Intraoral Repair	Primer for prosthesis
PALFIQUE UNIVERSAL BOND	✓	✓	✓	✓	✓
Adhese Universal	✓	✓	✓	▲	−

* Only composite repair

vs Adhese Universal / Ivoclar Vivadent

Bond Strength to Tooth



Bond Strength to Prosthetic materials

Adhese Universal does not work with restoration as prosthetic primer

Tokuyama Dental R&D Data

vs Futurabond U / Voco

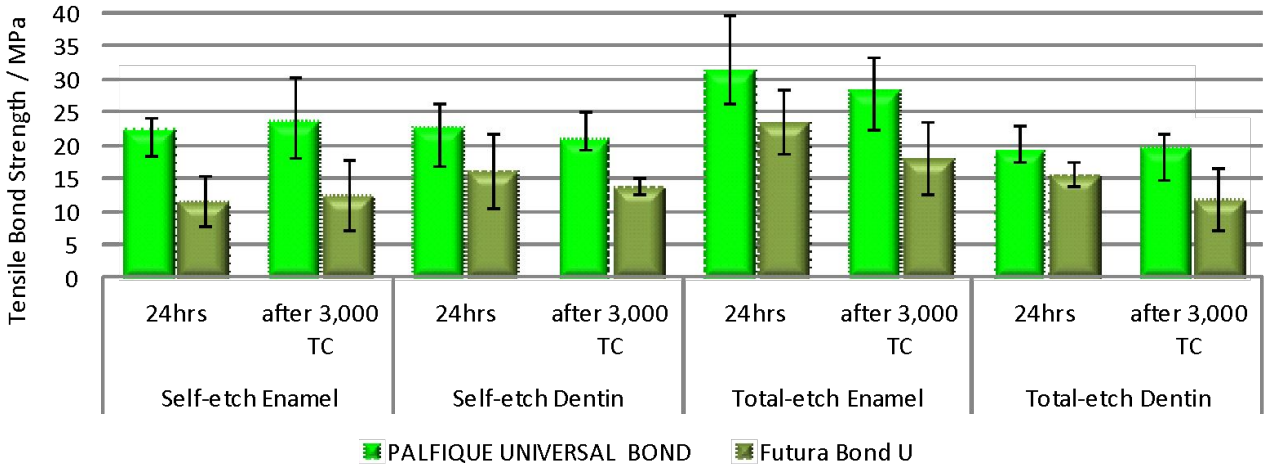
Advantages
+ Universal use
+ Adhesiveness
(especially, Tooth, Ceramics, Precious metal)

Disadvantage
+ Refrigeration required
+ Do not work as a desensitizer

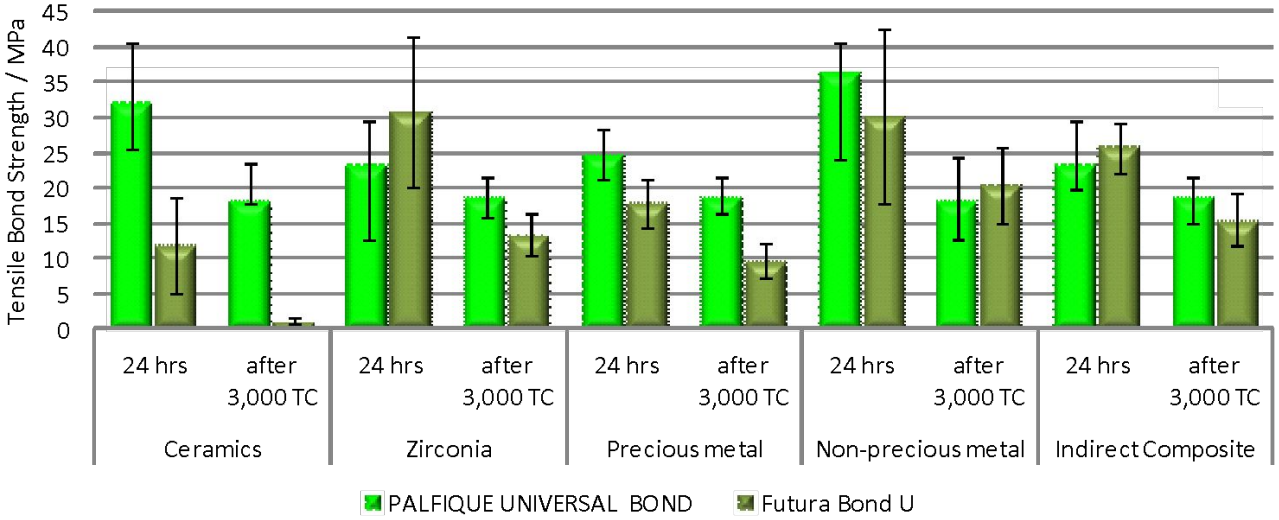
	Total-etch, Self-etch, Selective-etch	Compatible with all light-curing, dual-curing or self-curing composites	Indirect restorations	Intraoral Repair	Primer for prosthesis
PALFIQUE UNIVERSAL BOND	✓	✓	✓	✓	✓
Futurabond U	✓	✓	✓	✓	−

vs Futurabond U / Voco

Bond Strength to Tooth



Bond Strength to Prosthetic materials



Tokuyama Dental R&D Data

vs Clearfil Universal Bond / Kuraray

Advantages
+ Universal use
+ Adhesiveness
(especially, Tooth, Ceramics, Zirconia, Precious metal)

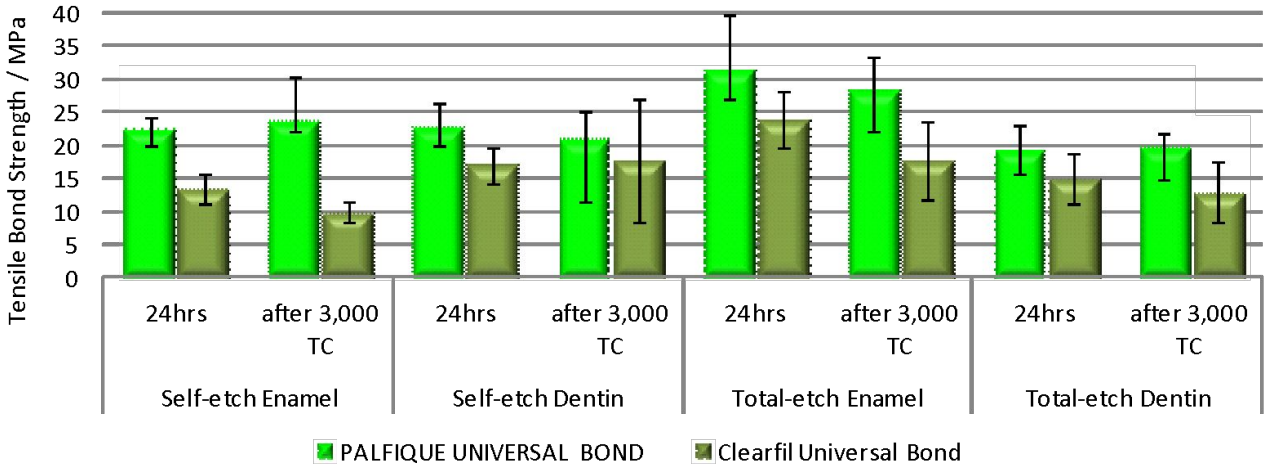
Disadvantage
+ 2 Bottles
+ Do not work as a desensitizer

	Total-etch, Self-etch, Selective-etch	Compatible with all light-curing, dual-curing or self-curing composites	Indirect restorations	Intraoral Repair	Primer for prosthesis
PALFIQUE UNIVERSAL BOND	✓	✓	✓	✓	✓
Clearfil Universal Bond	✓	▲*1	▲*1	✓*2	▲*1

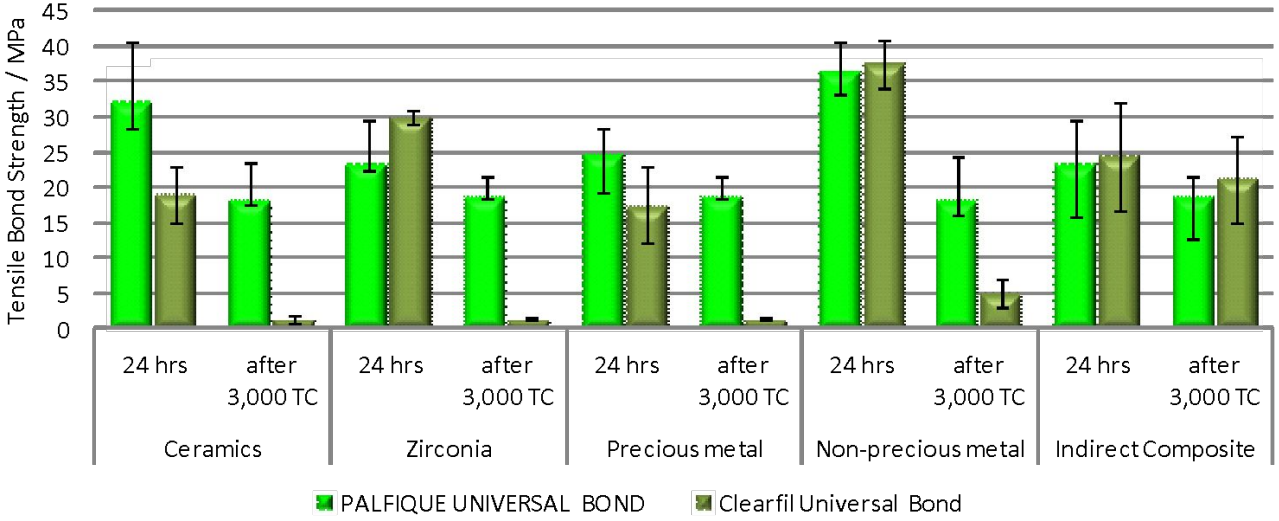
*1 Requires DCA and light-curing unless it is used with CLEARFIL DC CORE PLUS or PANAVIA SA CEMENT
*2 Primer recommended

vs Clearfil Universal Bond / Kuraray

Bond Strength to Tooth



Bond Strength to Prosthetic materials



Tokuyama Dental R&D Data

vs G-Premio Bond / GC

Advantages
+ Universal use
+ Adhesiveness
(Tooth, Prosthetic materials)

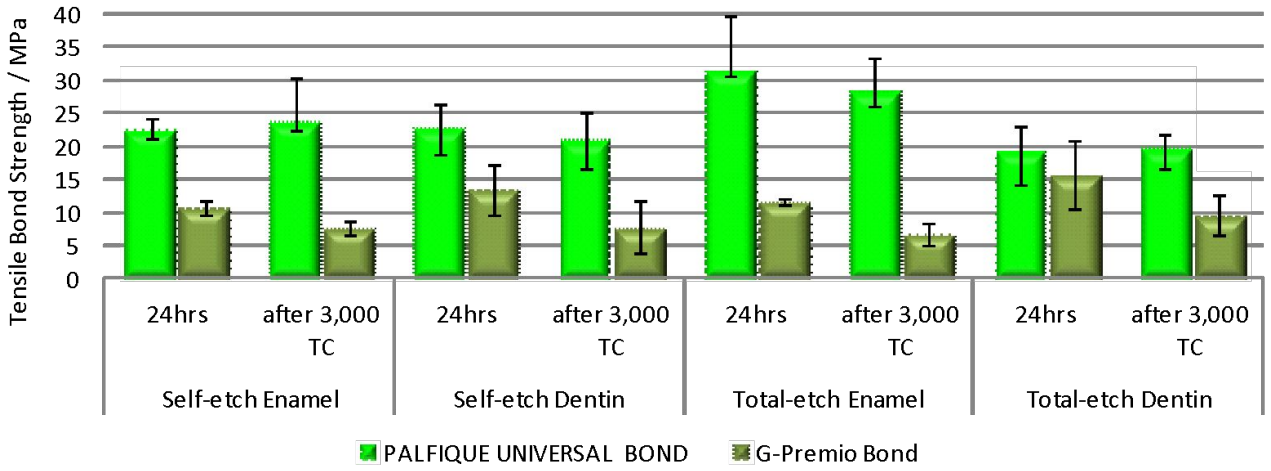
Disadvantage
+ 2 Bottles
+ Refrigeration required
+ Do not work as a desensitizer

	Total-etch, Self-etch, Selective-etch	Compatible with all light-curing, dual-curing or self-curing composites	Indirect restorations	Intraoral Repair	Primer for prosthesis
PALFIQUE UNIVERSAL BOND	✓	✓	✓	✓	✓
G-Premio Bond	✓	−*1	▲2	▲3	−

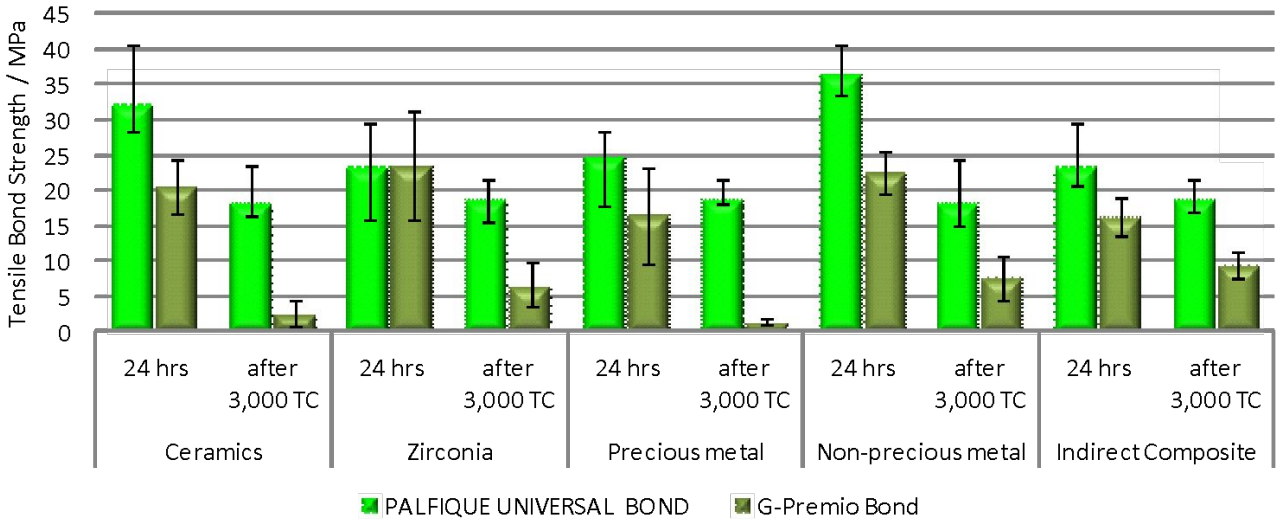
*1 Bonding of dual-cured core build up composites to tooth structure as long as these materials are light-cured
*2 Requires DCA
*3 Requires Primer

vs G-Premio Bond / GC

Bond Strength to Tooth



Bond Strength to Prosthetic materials



Tokuyama Dental R&D Data

vs All Bond Universal / Bisco

Advantages
+ Universal use
+ Adhesiveness
(Tooth, Prosthetic materials)

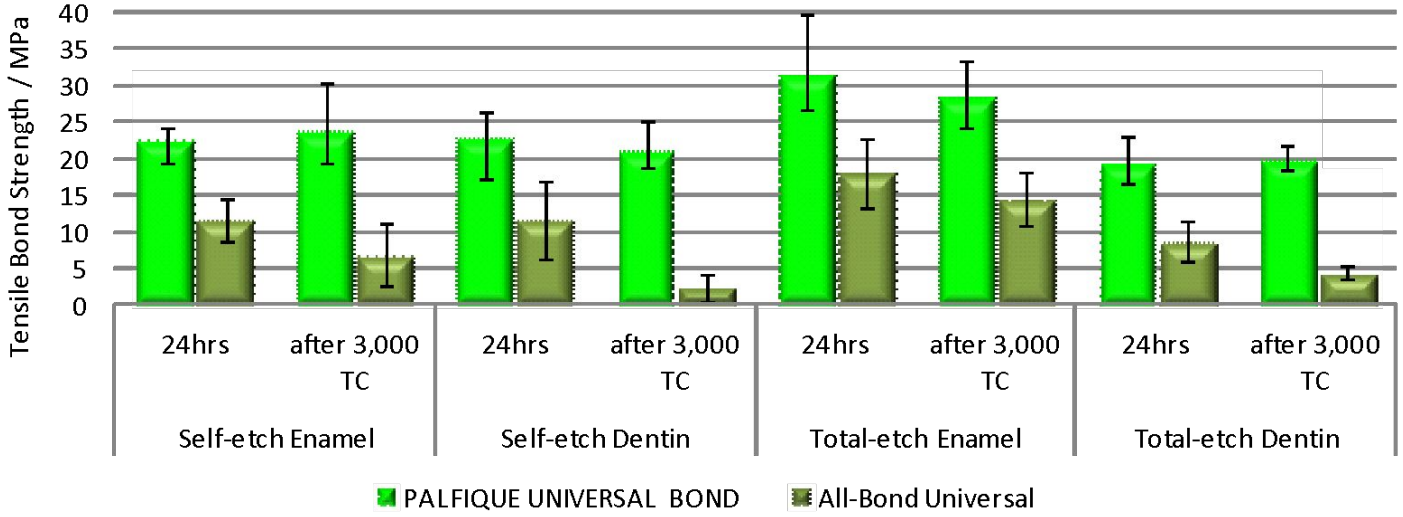
Disadvantage
+ 2 Bottles
+ Refrigeration required
+ Do not work as a desensitizer

	Total-etch, Self-etch, Selective-etch	Compatible with all light-curing, dual-curing or self-curing composites	Indirect restorations	Intraoral Repair	Primer for prosthesis
PALFIQUE UNIVERSAL BOND	✓	✓	✓	✓	✓
All-Bond Universal	✓	✓	✓	▲1	✓2

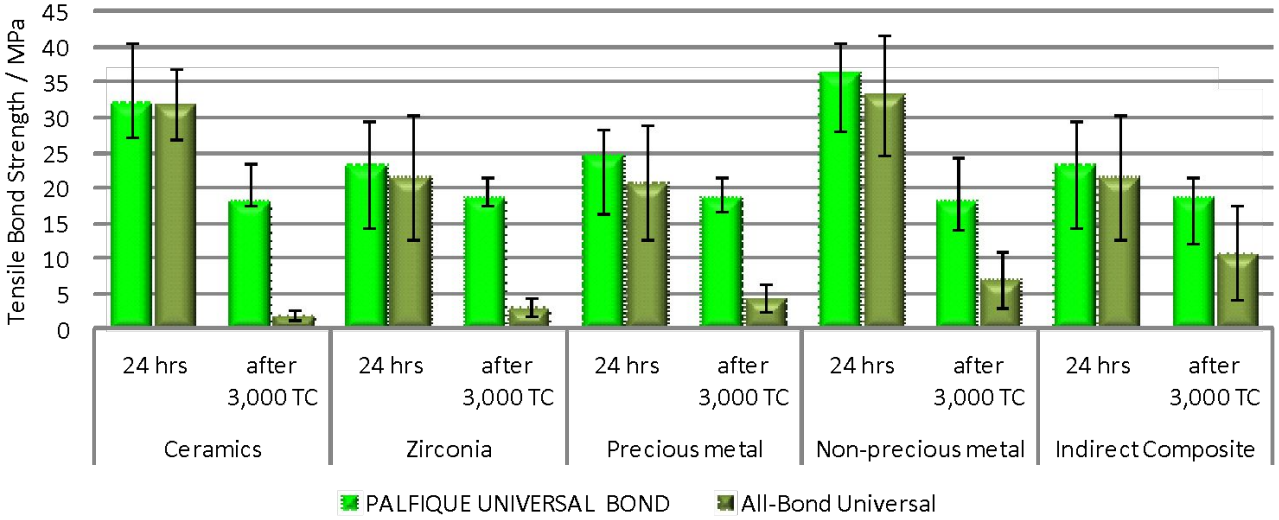
*4 Requires Primer
*5 Requires light-curing

vs All-Bond Universal / Bisco

Bond Strength to Tooth



Bond Strength to Prosthetic materials



Tokuyama Dental R&D Data

Information of Competitive Products

1) Scotchbond Universal Adhesive / 3MESPE

Info:
+ launched on USA market at 2011/3Q
+ No.1 UB (share is 8.7% at 2015 1Q) in USA
+ launched on all over the world (using another name)
+ increasing of the share in each country
+ gold standard in adhesion test right now

Merit:
+ multi purpose
+ works with RelyX Ultimate
+ 2-25°C storage
+ 1 bottle

Demerit:
+ treatment method (rub it in 20s)
+ necessity of DCA for dual cure / self cure materials other than Ultimate
+ does not work as prosthetic primer with materials other than Ultimate (necessity of DCA)
+ adhesiveness and durability to precious metal & ceramics

2) Adhese Universal / Ivoclar Vivadent

Info:
+ launched on USA market at 2014/1Q
+ launched on all over the world
+ No.4 UB (share is 1.8% at 2015 1Q) in USA

Merit:
+ multi purpose
+ 1 bottle & Vivapen available
+ works with Variolink Esthetic DC
+ 2-28ºC storage
+ works with dual cure / self cure materials without DCA

Demerit:
+ does not work with restoration as prosthetic primer
+ works only in composite repair

3) Xeno Select / Dentsply Detrey

Info:
+ launched on EU market only

Merit:
+ 2-24ºC storage
+ 1 bottle

Demerit:
+ Direct restoration only
+ treatment method (rub it in 20s)

4) Futurabond U / Voco

Info:
+ launched on USA market at 2013/3Q
+ launched on USA & EU
+ No.2 UB (share is 2.9% at 2015 1Q) in USA

Merit:
+ multi purpose
+ 4-23°C storage
+ works with dual cure / self cure materials without DCA
+ UD is available
+ unnecessary of an additional primer for restoration in oral repair

Demerit:
+ 2 bottle
+ treatment method (rub in for 20s)
+ does not work with restoration as prosthetic primer

5) iBond Universal / Heraeus Kulzer

Info:
+ launched on USA market at 2015/3Q
+ launched on USA & EU

Merit:
+ multi purpose
+ 4-23°C storage
+ works with dual cure / self cure materials without DCA
+ UD is available

Demerit:
+ treatment method (rub in for 20s)
+ necessity of silane primer for ceramics/resin restoration
+ does not work with restoration as prosthetic primer

6) Clearfil Universal Bond / Kuraray

Info:
+ launched on USA market at 2014/1Q
+ launched on USA & EU market only (?)
+ No.5 UB (share is 0.6% at 2015 1Q) in USA

Merit:
+ multi purpose
+ 1 bottle

Demerit:
+ 2-8^{o}C storage
+ necessity of DCA for dual cure / self cure materials other than Panavia SA cement & Clearfil DC Core Plus
+ does not work as prosthetic primer with materials other than Panavia SA cement & Clearfil DC Core Plus
(necessity of DCA)
+ recommendation of an additional primer for restoration in oral repair

7) G-Premio Bond / GC

Info:
+ launched on all over the world

Merit:
+ multi purpose
+ 1-25ºC storage
+ can provide sufficient bonding strength even when dried immediately after application without waiting time

Demerit:
+ does not work with self cured resin
+ does not work with restoration as prosthetic primer
+ necessity of silane primer for ceramics/resin in oral repair
+ need to shake the bottle prior to dispensing

8) ALL-BOND Universal / BISCO

Info:
+ launched on USA market at 2012/1Q
+ launched on all over the world
+ no information regarding sales due to direct sales

Merit:
+ multi purpose
+ works with Duolink Universal
+ 2-25^{o}C storage
+ 1 bottle
+ works with dual cure / self cure materials without DCA

Demerit:
+ treatment method (rub it in 20s / two times)
+ necessity of an additional primer for restoration
+ necessity of a light curing to restoration in case of working as prosthetic primer (film thickness)

9) Prime & Bond Elect / Dentsply Caulk

Info:
+ launched on USA market at 2012/4Q
+ launched on USA market only (?)
    * Xeno Select is launched on EU market by Dentsply Detrey
+ No.3 UB (share is 3.9% at 2015 1Q) in USA

Merit:
+ multi purpose
+ works with Experiment Cement R1096
+ 1 bottle

Demerit:
+ 2-8^{o}C storage
+ treatment method (rub it in 20s)
+ necessity of DCA for dual cure / self cure materials
+ necessity of an additional primer for restoration in oral repair
+ necessity of a light curing & DCA to restoration in case of working as prosthetic primer

10) Prelude One / Danville

Info:
+ launched on USA market at 2013/2Q
+ launched on USA market only (?)
+ No.6 UB (share is 0.04% at 2015 1Q) in USA

Merit:
+ < 29ºC storage
+ 1 bottle
+ works with dual cure / self cure materials without DCA
+ unnecessary of an additional primer for restoration in oral repair

Demerit:
+ treatment method (scrub for 20s)
+ necessity of a light curing to restoration in case of working as prosthetic primer