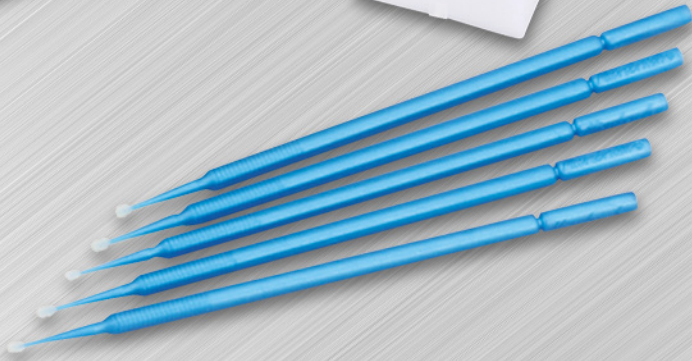




SHIELD FORCE® PLUS

Instant and Long-Term Pain Relief



Causes of Dentinal Hypersensitivity



Hot Liquid



Cold Liquid



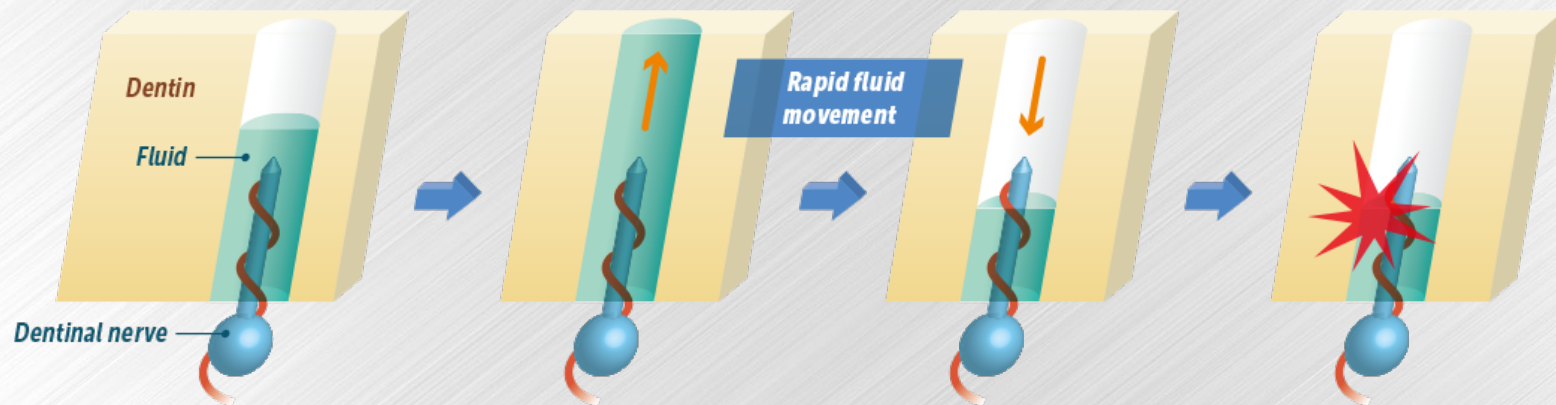
Sweet Food



Sour Food

- Stimuli such as thermal, evaporative, tactile, osmotic or chemical can cause sensitivity through the rapid fluid movement in the dentinal tubes.

Mechanism of Hypersensitive Dentin



Shield Force Plus is indicated for:

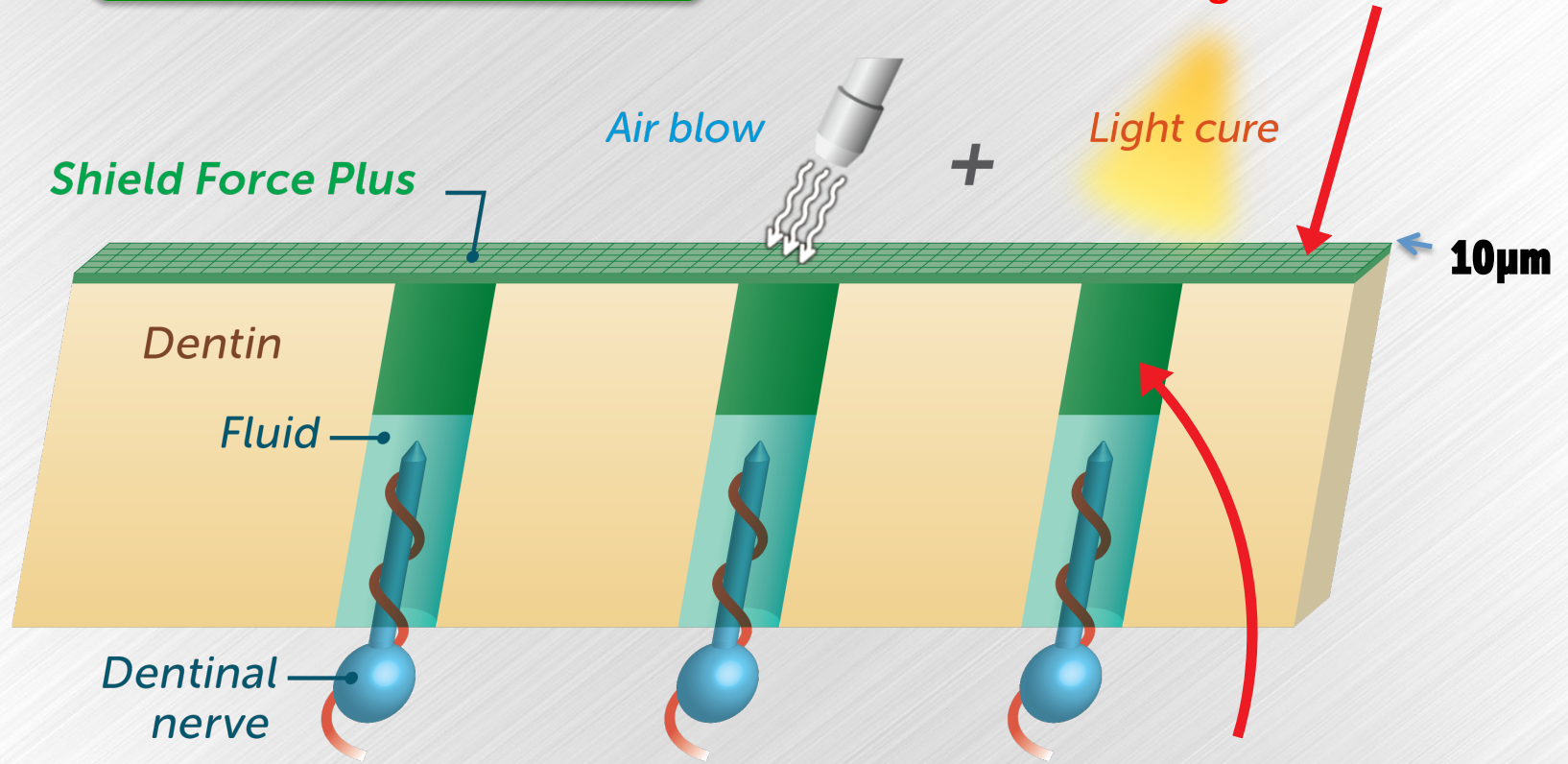
- Under Crowns
- Bridges
- Inlays and Onlays
- Veneers
- Provisionals
- Under Direct Restorations
- Cervical Erosions
- Exposed Dentin Surfaces
- Gingival Recession

Shield Force Plus

Treatment of Hypersensitive Dentin

Double-Block Technology

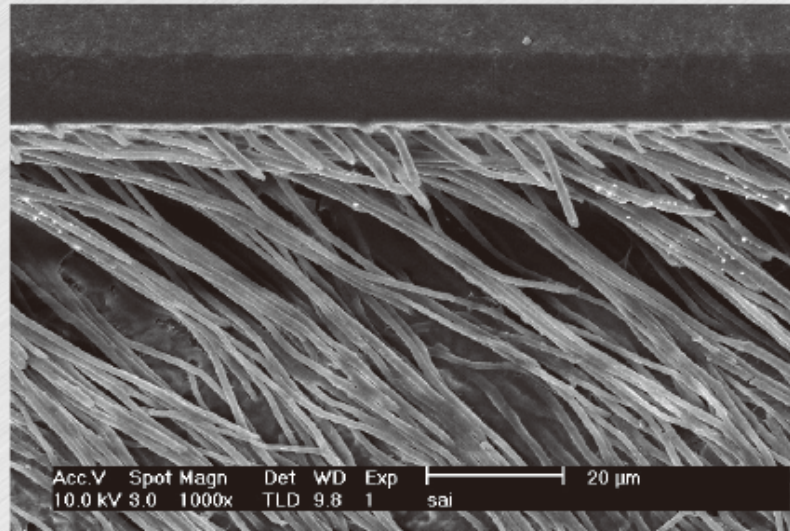
Block #2 – Long-term sealing.
A uniform thin layer and durable coating forms when light cured.



Block #1 – Quick sensitivity relief
through resin tags.
(with the reaction of monomer and Ca)

Block #1 for Initial Desensitization

- **Initial Desensitization**
 - Dentinal fluid movement stops through the creation of resin tags 50 μ m deep



SEM image - Magx1000

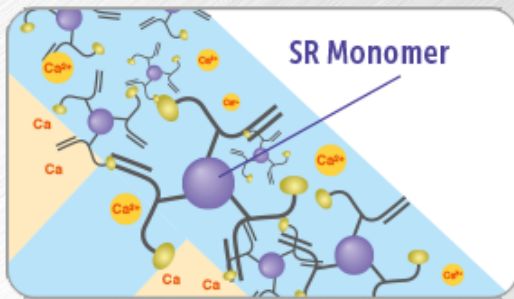
** In-house data, R&D, Tokuyama Dental Corporation.

Note: This is a test model demonstrating hypersensitive dentin, using an extracted human tooth ground on the surface to expose the dentinal tubules.

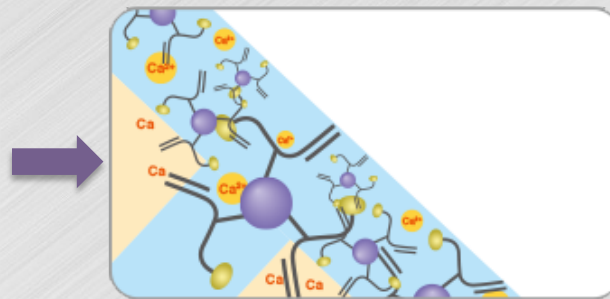
Block #2 for Long-Term Desensitization

- **Long-Term Desensitization**

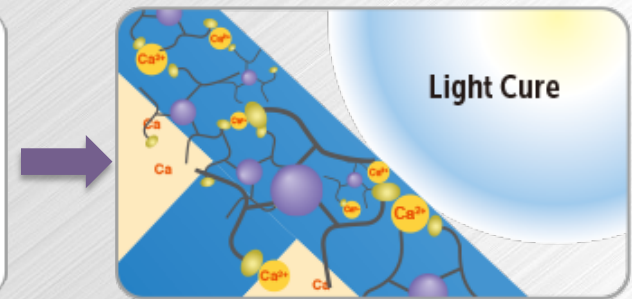
- Light Curing creates a 10 μ m layer that provides desensitization for up to 3 years.*



Reaction of SR monomer with calcium ions.



Formation of resin layer, after air drying to remove solvent and water.



Polymerization of resin layer when light cured.

*Results may vary based on patient diet, proper oral care, and conformance to product directions. Wear data tested in vitro.

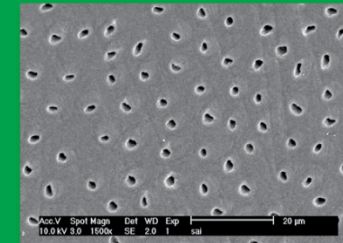
Superior Long-Term Results

Shield Force Plus

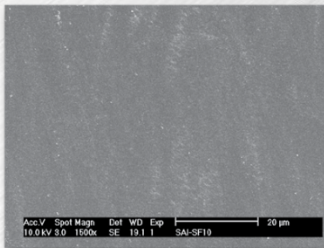
provides longer-lasting desensitization properties versus competitors.

Dentinal tubules initial sealing and long-term durability: Thermacycle test (10,000 thermal cycles) 4°C – 60°C.**

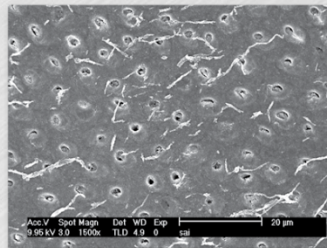
Model for hypersensitivity



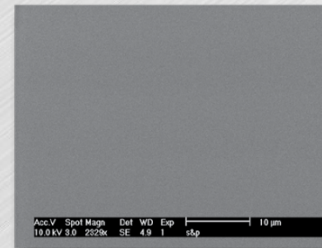
Initial placement



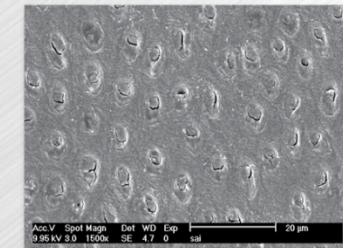
Shield Force® Plus



SuperSeal®

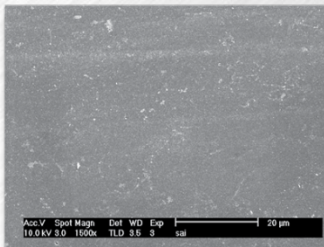


Seal&Protect®

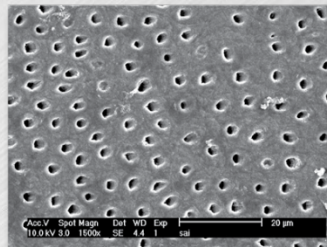


Gluma® Desensitizer

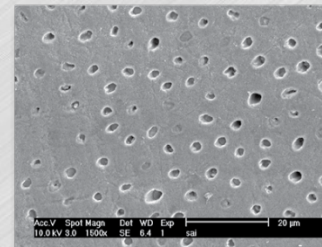
10,000 thermal cycles



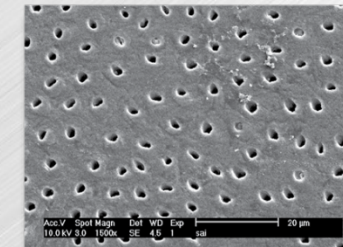
Shield Force® Plus



SuperSeal®*



Seal&Protect®*



Gluma® Desensitizer*

*Not a registered mark of Tokuyama Dental Corporation.

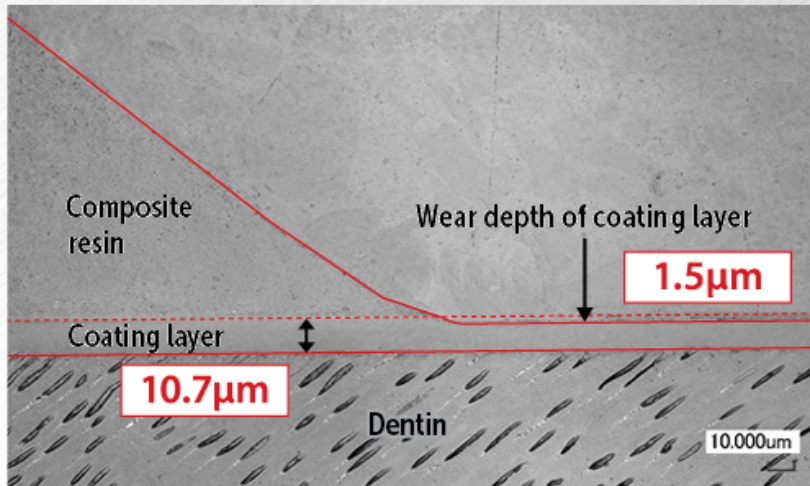
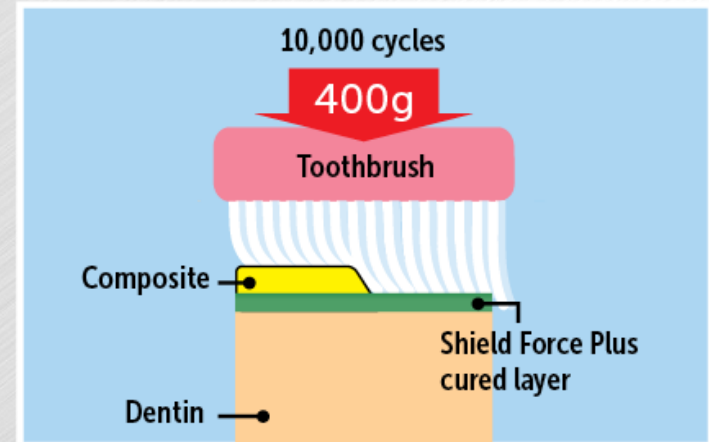
** In-house data, R&D, Tokuyama Dental Corporation.

Reduction of Abrasion and Erosion of Exposed Cervical Dentin

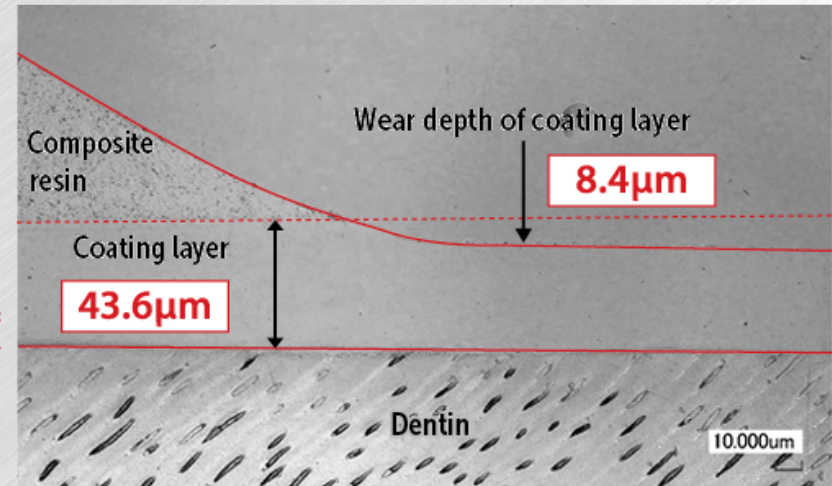
Toothbrush Abrasion Test (10,000 cycles)**

The layer of Shield Force Plus exhibits only 1.5 μm of wear while Seal & Protect®* exhibits 8.4 μm of wear after the test.

Toothbrush Abrasion Test



Shield Force Plus



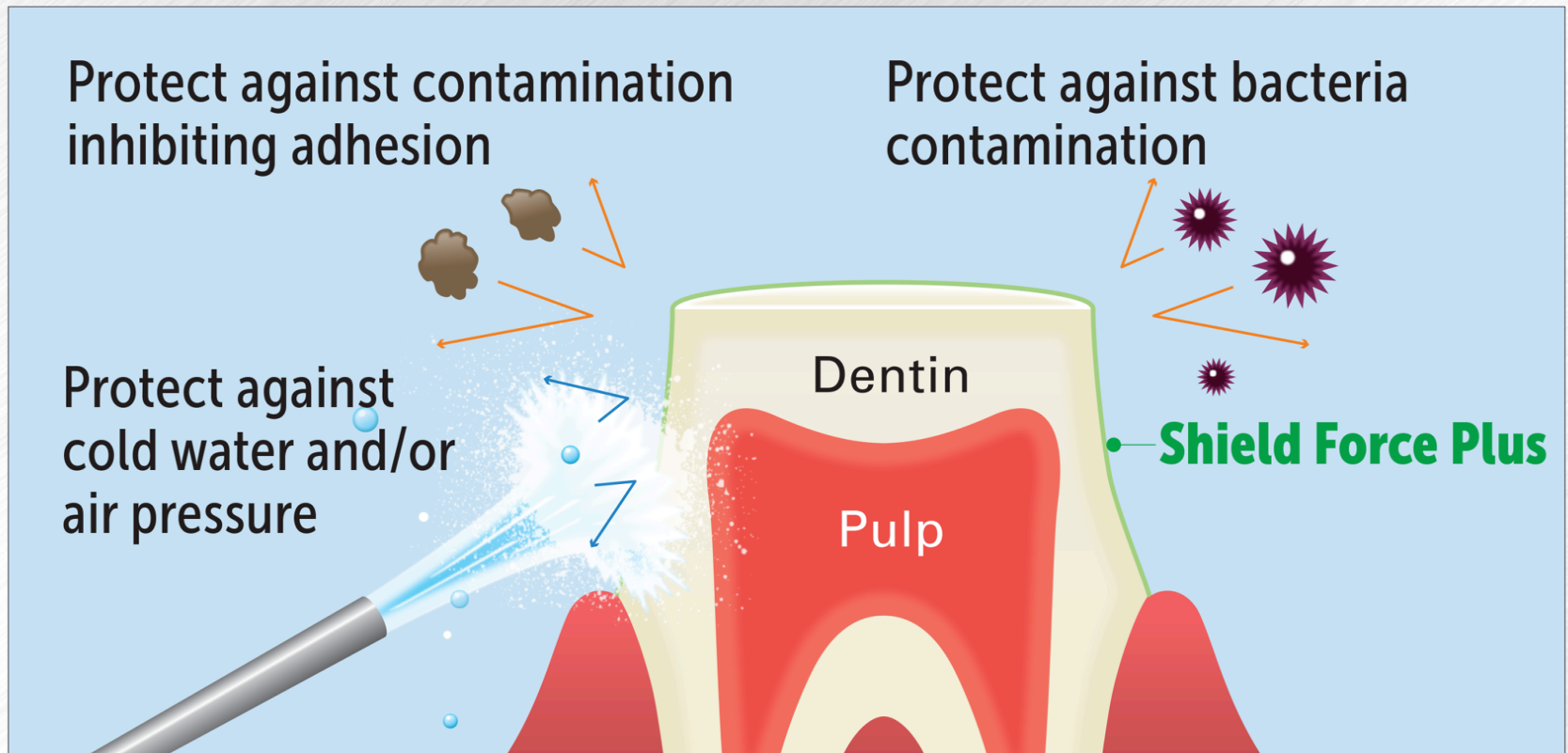
Seal & Protect®*

*Not a registered mark of Tokuyama Dental Corporation.

** In-house data, R&D, Tokuyama Dental Corporation.

Superior Sealing Effect

- When used under direct/in-direct restorations, Shield Force Plus will:
 - alleviate and/or prevent tooth sensitivity caused by cold water and air pressure during the preparation
 - protect the tooth from bacteria and unexpected contamination to the dentin.
 - alleviate and/or prevent post operative sensitivity.

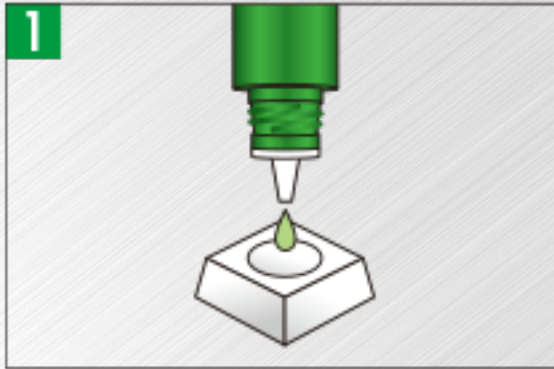


1

Treatment Of Dentinal Hypersensitivity/Coating Of Exposed Cervical Dentin

Apply

10
secs.



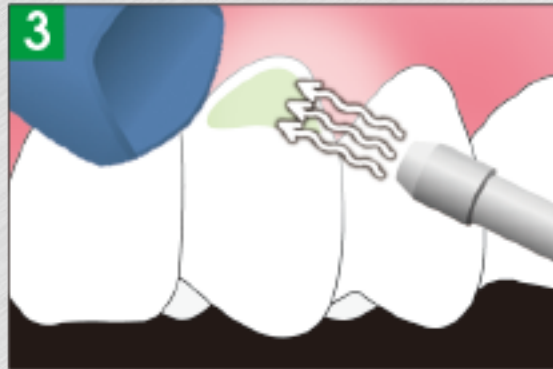
Dispense



Apply Shield Force Plus, then leave for 10+ seconds

Dry

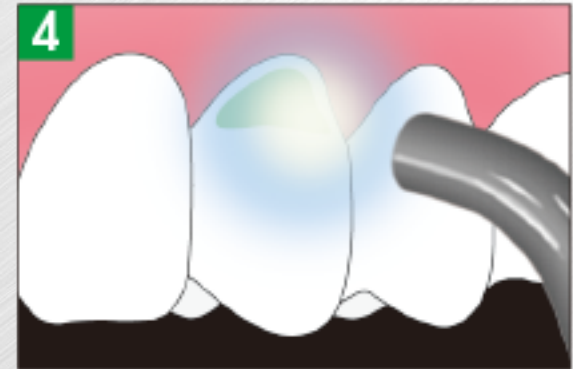
10
secs.



Apply weak air for five seconds then strong air for five or more seconds

Cure

10
secs.

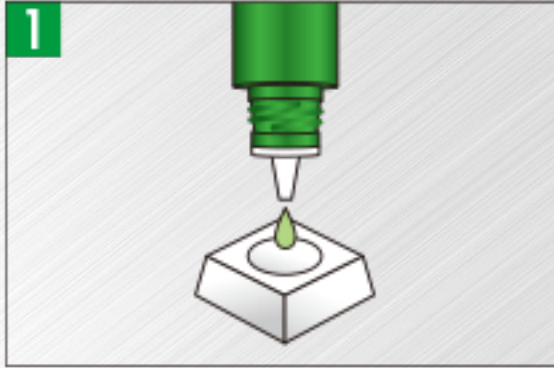


Light cure for 10+ seconds

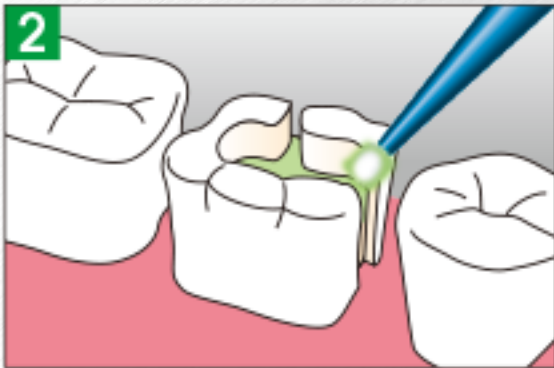
2

Sealing Of Prepared Tooth To Alleviate/Prevent Tooth Sensitivity (Direct Restorations)

Apply

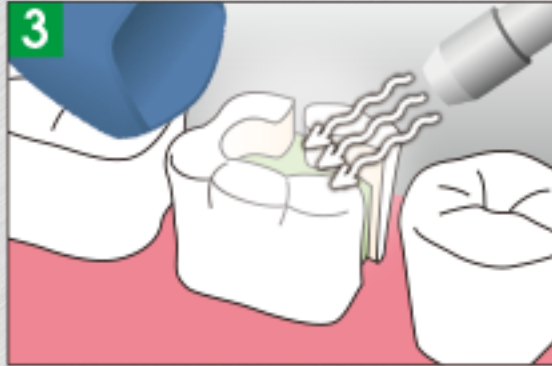


Dispense



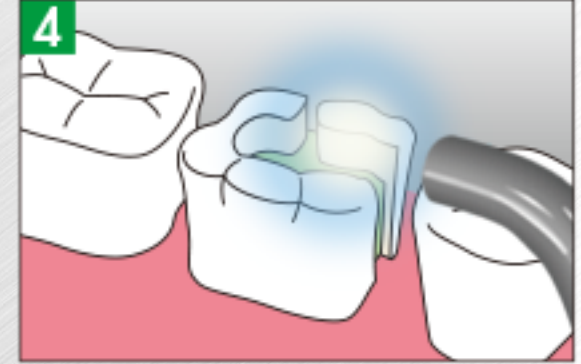
Apply Shield Force Plus, then leave for 10+ seconds

Dry



Apply weak air for five seconds then strong air for five or more seconds

Cure



Light cure for 10+ seconds

5 Adhesive Treatment*

6 Composite Resin Filling

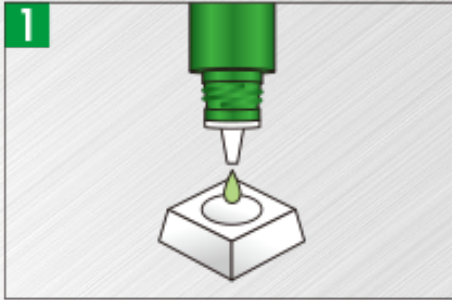
* If using a total etch bonding system, etchant must be applied "AFTER" Shield Force Plus procedure.

3

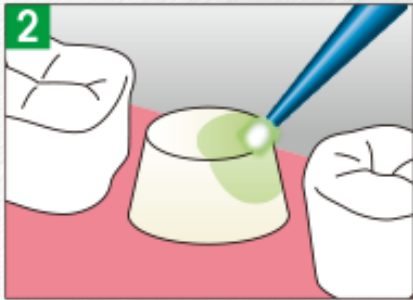
Sealing of Prepared Tooth To Alleviate/Prevent Tooth Sensitivity (Indirect Restorations)

Apply

10
secs.



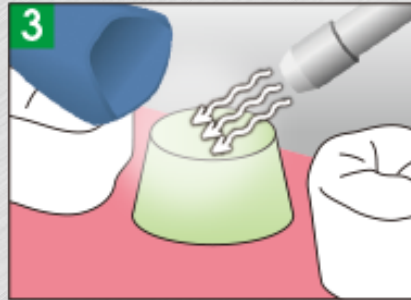
1
Dispense



2
Apply Shield Force Plus, then leave for 10+ seconds

Dry

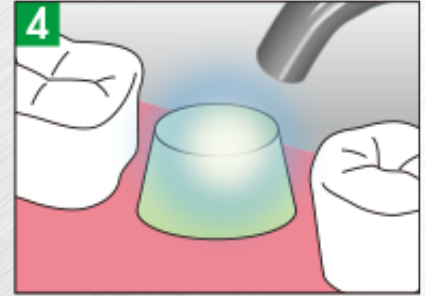
10
secs.



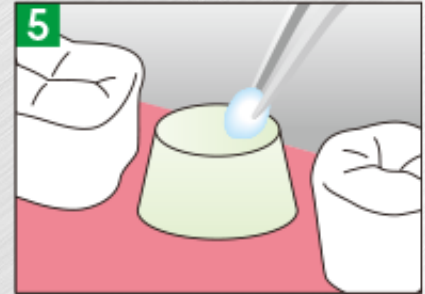
3
Apply weak air for five seconds then strong air for five or more seconds

Cure

10
secs.



4
Light cure for 10+ seconds



**Wipe unpolymerized layer with alcohol

6 Impression

7 Temporary Filling/
Cementing Application***

8 Permanent Restoration

* * BEFORE taking impression, it is essential to wipe dentin surface with alcohol, removing unpolymerized layer of Shield Force Plus that could prevent an accurate impression.

* * * Do NOT use temporary resin-based material, it may adhere to the cured Shield Force Plus. The use of water-based cement would be recommended for temporary cementing, and temporary stopping would be recommended for temporary filling.

EFFECTS OF SHIELD FORCE PLUS ON BOND STRENGTH

EFFECT OF BOND STRENGTH WITH DESENSITIZER

1) Specimen was grounded using #600 silicon carbide paper to expose dentin and enamel.

2) The surface was treated with the following materials:
SFP: Shield Force Plus, GL: Gluma, SP: Seal & Protect, SS: SuperSeal.

3) Then the surface was treated with Bonding agent below:

All-In-One Self-Etching:

- Optibond All-In-One (Kerr)
- Bond Force (Tokuyama)

Multi step Self-Etching:

- SE Bond (Kuraray)

Total-Etching:

- Scotch Bond Multi-Purpose (3M ESPE)
- Single Bond Plus (3MESPE)
- Prime & Bond NT (Dentsply)
- Optibond Solo Plus (Kerr)

4) Estelite composite was filled and Attachment was set using Bistite II cement.

5) After leaving in water at 98.6F for 24 hours, tensile bond strength was examined at a crosshead speed of 2m/min per hour.

B: Bonding cohesive fracture, D: Dentine cohesive fracture, K: Interface failure.

SFP, GL: No influence
 (Rather good influence)
 SS: Bad influence
 SP: Low adhesion itself

Bonding Agent	Material	Dentin	Enamel
Bond Force	SFP	24.7(4.9)D	25.1(5.0)K
	GL	23.8(7.4)D	24.4(6.7)K
	SP	12.7(2.8)K	6.4(4.6)K
	SS	4.4(2.4)K	2.1(0.5)K
	—	23.3(2.5)D	23.1(4.7)K
OptiBond All In One	SFP	24.9(5.0)D	24.2(7.3)B
	—	10.3(1.8)K	22.1(3.8)B
SE Bond	SFP	25.0(5.7)D	24.4(6.0)B
	GL	26.2(3.4)D	22.9(6.1)K
	SP	11.6(2.9)K	—
	SS	9.3(2.8)K	—
	—	20.9(2.7)K	24.8(5.9)K
Scotch Bond Multi Purpose	SFP	20.6(5.6)B	19.2(7.5)B
	—	13.1(2.6)K	12.6(6.3)K
Single Bond Plus	SFP	25.8(7.5)B,D	25.4(7.7)B
	GL	11.6(3.8)K	15.5(6.7)B,K
	SP	10.4(1.9)K	—
	SS	6.8(2.1)K	—
	—	10.6(2.3)K	15.4(3.4)K,B
Prime & Bond NT	SFP	24.7(5.9)D	29.8(7.3)B
	—	11.3(2.8)K	27.6(5.2)K,B
OptiBond Solo Plus	SFP	25.3(6.1)D	26.9(4.5)K
	—	18.7(2.1)K	24.7(1.6)K

Bond Strength Of The Cement On The Abutment Teeth Treated With Various Desensitizing Materials

Cement	Impression	Temporary restoratives	Desensitizing materials				
			Without	SFP	SP	SS	GL
Multilink	Aquasil Ultra Heavy	Stopping	12.8(1.1) K	18.6 (7.6) D	4.2(1.7) K	8.8(7.7) K	13.0(2.1) K
Optibond All In One N.X.3/Kerr	Aquasil Ultra Heavy/ Dentsply	Cavition	10.6(7.5) K	16.4(7.5) D	10.4(4.8) K	9.2(1.1) K	12.0(4.5) K
	Jeltrade/ Dentsply	Cavition	8.6(1.5) K	25.0(3.4) D	13.1(6.7) K	9.4(2.7) K	12.6(1.7) K

D: Dentin cohesive fracture K: Interface failure C: Cement cohesive fracture
 K': Coating-Cement interface failure A: Attachment fracture

Shield Force Plus has a positive influence on adhesion



Shield Force Plus:
A trusted desensitizer
that has been proven to
provide initial and long-
term tooth pain relief for
happy patients.

