Adper™ Scotchbond™ SE Self-Etch Adhesive

technical product profile

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Introduction

Product Description

Adper™ Scotchbond™ SE Self-Etch Adhesive is a simple to use, two-bottle, self-etch bonding agent from 3M™ ESPE™. This brand-new self-etch adhesive provides excellent bonding performance equivalent to total-etch systems on prepared enamel and dentin.

The system consists of an aqueous primer (Liquid A) and an acidic adhesive (Liquid B). The primer contains a pink color indicator that ensures complete coverage of the preparation. The pink color disappears upon application of the adhesive, indicating activation of the acid and assuring that a proper etch is taking place. The technique provides for a solvent-free, hydrophobic overcoat similar to the bonding philosophy of Adper™ Scotchbond™ Multipurpose adhesive. This novel bonding approach, combining the unique color change technology and hydrophobic overcoat, results in low technique sensitivity and more consistent performance.

The adhesive contains a bonded zirconia nanofiller that provides radiopacity to reduce the chance of misdiagnosis of secondary caries in the case of adhesive pooling. In addition, the bonded nanofiller enhances bond strength.

Adper Scotchbond SE Self-Etch adhesive can be used for the following indications.

- Bonding between dentin/enamel and composite filling materials
- Bonding between dentin/enamel and compomer filling materials
- Intraoral repair of porcelain, composite and metal using light-cure composite resin
- Desensitization of hypersensitive teeth/root surface desensitization

Contraindications:

- Use with dual-curing or self-curing materials
- Indirect applications including use in veneer placement

Composition

Adper™ Scotchbond™ SE Self-Etch Adhesive consists of an aqueous primer (Liquid A) and an acidic adhesive (Liquid B). Separation of the aqueous and acidic components minimizes hydrolysis of the acidic phosphates for improved shelf stability.

The two-bottle composition consists of the following.

<table>
<thead>
<tr>
<th>Liquid A</th>
<th>Liquid B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>UDMA</td>
</tr>
<tr>
<td>HEMA</td>
<td>TEGDMA</td>
</tr>
<tr>
<td>Surfactant</td>
<td>TMPTMA (hydrophobic trimethacrylate)</td>
</tr>
<tr>
<td>Pink colorant</td>
<td>HEMA phosphates</td>
</tr>
<tr>
<td></td>
<td>MHP (methacrylated phosphates)</td>
</tr>
<tr>
<td></td>
<td>Bonded zirconia nanofiller</td>
</tr>
<tr>
<td></td>
<td>Initiator system based on camphorquinone</td>
</tr>
</tbody>
</table>
Application Technique

The application technique is depicted in Figure 1. The initial color of Liquid A gives a good indication that full coverage of the adhesive on the prepared surface is achieved (Figure 1-1). When Liquid B is applied to the tooth surface, the color disappears (Figure 1-2). This color change indicates the activation of the acidic monomers in Liquid B and the commencement of the etching process. Although the color change is instantaneous, it is important to maintain agitation on the surface for 20 seconds to ensure a proper etch. After 20 seconds of agitation, the adhesive is air-dried to remove water (Figure 1-3). Liquid B (adhesive) is reapplied and can be air thinned before it is light cured (Figure 1-4). This solvent-free second coat of adhesive provides a hydrophobic overcoat.

Background

The majority of dental adhesives fall into two categories, total-etch and self-etch. In total-etch adhesives, a phosphoric acid etchant is typically used to etch the surfaces of dentin and enamel. The adhesive subsequently forms a micromechanical bond with these etched surfaces, which provides a substrate upon which a composite material can be chemically bonded.

Mechanism of Adhesion to Enamel for Total-Etch Adhesives

Untreated enamel does not provide a suitable surface for dental adhesive bonding due to minimal porosities and a surface energy poorly suited for wetting with monomers. For total etch adhesives, a phosphoric acid etchant is used to superficially demineralize the hydroxyapatite of enamel. The demineralization greatly increases the surface area available for bonding, as shown in Figure 2.
This allows the low viscosity, polymerizable resins of the adhesive to penetrate the porosities revealed by the etching procedure to form an interlocking mechanical bond after curing. These interlocking resin tags are shown in Figure 3.

Mechanism for Adhesion to Dentin for Total-Etch Adhesives

For dentin bonding with total-etch adhesives, a similar process is involved to form the micromechanical bonding. A typically prepared dentin surface will contain a smear layer as shown in Figure 4.
Upon acid etching the dentin surface, the smear layer is removed, opening the dentin tubules. In addition, the intertubular dentin is demineralized, leaving a layer of collagen fibers as shown in Figure 5.

![Dentin tubule with surrounding collagen fibers. Image courtesy of Dr. J. Perdigao, University of Minnesota](image)

The open dentin tubules create a surface where adhesive can penetrate and form resin tags. In addition, the expanded collagen fiber network creates an additional bonding surface for the intertubular dentin, known as the hybrid layer. Figure 6 is a scanning electron micrograph (SEM) showing the formation of the hybrid layer and resin tags by the application of adhesive onto etched dentin.

![Scanning electron micrograph showing hybrid layer and resin tags.](image)

Provided the collagen layer remains hydrated, these fibers will remain expanded and the infiltration of adhesive resin monomers is maximized. Upon desiccation, however, the collagen layer collapses limiting the infiltration of resin monomers and impairing the formation of a hybrid layer. In this situation, localized adhesion may be compromised during polymerization contraction of the composite restorative material, contributing to gaps between the adhesive and dentin substrate. A possible outcome of this is post-operative sensitivity.

**Bonding Mechanism for Adper™ Scotchbond™ SE Self-Etch Adhesive**

Adper™ Scotchbond™ SE Self-Etch Adhesive differs from the total-etch adhesives discussed in the previous section. As a self-etch adhesive, the etching and subsequent penetration of resin monomers into the demineralized dentin and enamel is carried out without a separate etch.
and rinse step. In the case of Adper Scotchbond SE Self-Etch Adhesive, the aqueous primer is initially applied to the prepared tooth surface. When the adhesive is subsequently applied to the prepared surface, the acidic monomers are activated, initiating simultaneous etching and adhesive penetration.

A major benefit of this procedure for dentin bonding is that the etching depth and the depth of penetration of the adhesive are identical. In addition, this keeps the collagen fibers from collapsing and eliminates dependence on "moist bonding" characteristic of the 5th generation systems. This is important because technique sensitivity associated with bonding systems requiring a "moist bonding" technique may be associated with post-operative sensitivity.

A possible adhesion mechanism for the original Prompt™ L- Pop™ adhesive was described by Professor Reinhardt (University of Münster) and can also be used to describe the mechanism of Adper Scotchbond SE Self-Etch Adhesive.

The adhesive part of Adper Scotchbond SE Self-Etch Adhesive contains phosphoric acid esters, which under aqueous conditions will etch the surfaces of dentin and enamel to allow for the micromechanical bonding of the adhesive to the tooth. After the aqueous primer is applied to the prepared surface, the adhesive is added which starts the acid activation and etching process.

Once the acid is activated, bonding to dentin with Adper Scotchbond SE Self-Etch Adhesive involves dissolving the inorganic smear layer and demineralizing the intertubular dentin. The adhesive simultaneously penetrates the demineralized dentin to form the hybrid layer and flows into the dentin tubules to create resin tags. The depth of the demineralized zone corresponds to the depth of penetration of the monomers to be polymerized. Nanoleakage resulting from an insufficient penetration depth of the adhesive can be minimized by this mechanism. Figure 7 shows a transmission electron micrograph (TEM) of the hybrid layer formed with Adper Scotchbond SE Self-Etch Adhesive. The micrograph shows that Adper Scotchbond SE Self-Etch Adhesive displays a hybrid layer of approximately 1 micron in thickness.

Figure 7: Transmission electron micrograph showing hybrid layer formed with Adper Scotchbond SE Self-Etch Adhesive (image from Dr. Patricia Pereira).

Role of Inorganic Filler in Bonding

Adper™ Scotchbond™ SE Self-Etch adhesive contains a bonded zirconia nanofiller. It has been theorized that the presence of filler in adhesives helps to develop a uniform film, which in turn can lead to higher bond strengths. Figure 8 shows shear bond strength with and without the presence of filler on a prepared enamel substrate. This data shows that the nanofiller improves the bond strength to prepared enamel. A two sample t-test on the data gives a p-value of 0.019, which indicates a statistically significant difference in the two sets of data.
Another benefit of the bonded zirconia nanofiller is the inherent radiopacity of this material. In the case of adhesive pooling, it can be difficult to distinguish the adhesive from tooth decay on a radiograph. Figure 9 shows an X-ray taken where adhesive pooling was simulated with Adper Scotchbond SE Self-Etch Adhesive and a non-radiopaque self-etch adhesive. 3M™ ESPE™ Filtek™ Z250 restorative was used as the filling material in this study.

The cross-sectional view in Figure 9 shows two Class II restorations after application of Filtek Z250 restorative. The left side (distal-occlusal) was bonded with a non-radiopaque self-etch adhesive. Note the appearance of dark lines in multiple locations along the composite-adhesive-tooth interfaces caused by pooled radiolucent adhesive. The right side (mesial-occlusal) was bonded with Adper Scotchbond SE Self-Etch Adhesive. Due to Adper Scotchbond SE Self-Etch Adhesive's radiopacity, there are no dark areas present at any point along the composite-adhesive-tooth interfaces. The dark areas could potentially be confused with tooth decay, so having a radiopaque adhesive is advantageous in the situation of inadvertent pooling of adhesive.

The radiopacity is reported as the ratio of the optical density of the test sample to that of an aluminum block of the same thickness according to ISO 4049. Adper Scotchbond SE Self-Etch Adhesive has been measured to have a radiopacity value of 1.0-1.1 mm, where a value of 1 or greater is considered to be radiopaque by the ISO standard.
Test Results

Laboratory Evaluation

Test Centers:
University of Alabama-Birmingham (Dr. Burgess), University of Minnesota (Dr. Perdigao), University of Ulm (Professor Dr. B. Haller)

Bond Strengths to Dentin and Cut Enamel

Adper™ Scotchbond™ SE Self-Etch Adhesive demonstrates bond strengths on dentin and prepared enamel comparable to leading total-etch and self-etch adhesives. Dr. John Burgess, University of Alabama-Birmingham, used a shear test method to measure the bond strength of Adper Scotchbond SE Self-Etch Adhesive and other bonding agents (Figures 10-1 and 10-2).

Figure 10-1: Shear bond strengths to cut enamel

Figure 10-2: Shear bond strength to dentin
An internal study was conducted comparing Adper Scotchbond SE Self-Etch Adhesive to leading self-etch (blue bars) and total-etch (green bars) adhesives on bovine cut enamel and dentin (Figures 11-1 and 11-2). A notched-edge shear test method was used with Filtek™ Z250 restorative.

**Figure 11-1: Shear bond strength to cut enamel**

**Figure 11-2: Shear bond strength to dentin**
Thermal Cycling Data

An adhesive thermal stability study was conducted on bovine cut enamel and dentin. 3M™ ESPE™ Filtek™ Z250 restorative was used as the composite in this study. The samples were thermally cycled, where one cycle consisted of 30 seconds at 5°C and 30 seconds at 55°C, and bond strength testing was conducted every 10,000 cycles. The results show very good thermal stability for Adper™ Scotchbond™ SE Self-Etch Adhesive, and the results are statistically equivalent to the total-etch control of Adper™ Single Bond Plus adhesive (Figures 12-1 and 12-2).

Figure 12-1: Thermal cycling results, cut enamel (3M ESPE internal data, notched-edge shear test)

Figure 12-2: Thermal cycling results, dentin (3M ESPE internal data, notched-edge shear test)
Moisture Tolerance

A study was conducted to determine the effect of surface moisture on bond strength for Adper™ Scotchbond™ SE Self-Etch Adhesive. The following graph shows shear bond strength data on bovine dentin and cut enamel with either a moist or dry surface (Figures 13-1 and 13-2). Two-sample t-tests conducted on both sets of data show that the bond strength of Adper Scotchbond SE is statistically equivalent regardless of surface moisture for both dentin and enamel substrates.

Figure 13-1: Bond strengths to dry versus moist cut enamel (3M ESPE internal data, notched-edge shear test)

Figure 13-2: Bond strengths to dry versus moist dentin (3M ESPE internal data, notched-edge shear test)
Marginal Integrity

Professor Dr. B. Haller of the University of Ulm measured several parameters pertaining to Class V restorations before and after thermal cycling to determine marginal integrity. Adper™ Scotchbond™ SE Self-Etch Adhesive displayed very good marginal adaptation.

The following graphs show the % continuous margins with dentin and cut enamel before and after thermal cycling for Adper Scotchbond SE Self-Etch Adhesive and other adhesives (Figures 14-1 and 14-2). The percent continuous margin after thermal cycling is very high for Adper Scotchbond SE Self-Etch Adhesive (99.9% for enamel, 98.4% for dentin).

![Figure 14-1: Continuous margin, cut enamel](image1)

![Figure 14-2: Continuous margin, dentin](image2)
Microleakage

Dr. Perdigao at the University of Minnesota conducted a microleakage study with Adper™ Scotchbond™ SE Self-Etch Adhesive and selected other adhesives. Restorations were placed in extracted human teeth with margins in enamel and dentin using the manufacturer’s instructions for use. Samples were thermally cycled from 5°C to 55°C for approximately 24 hours and then immersed in a dye solution for 24 hours. Teeth were removed, sectioned, and measured using the following scale:

0 = no leakage
1 = less than one-third
2 = one-third to two-thirds
3 = greater than two-thirds but within surrounding wall
4 = involve axial wall

Figure 15 shows the results of Dr. Perdigao’s microleakage study.

![Figure 15: Human teeth microleakage](image-url)
Nanoleakage

Dr. Perdigão conducted a nanoleakage study on human teeth with Adper™ Scotchbond™ SE Self-Etch Adhesive and selected other adhesives. Class V cavities were prepared, and the adhesive was applied per manufacturer’s instructions, followed by Filtek™ Z250 composite. The prepared specimens were immersed in an ammoniacal silver nitrate solution for 24 hours, followed by eight hours in a photo-developing solution. After further specimen processing, the specimens were cross-sectioned through the center of the restoration. The cross-sections were viewed using field-emission scanning electron microscopy (FE-SEM). Nanoleakage was calculated as a percentage of the dye penetration into total preparation wall length. Adper Scotchbond SE Self-Etch Adhesive was the only bonding agent to show no signs of nanoleakage in any of the specimens. Figure 16 shows the nanoleakage results.

![Figure 16: Human teeth nanoleakage](image)

Low Post-Operative Sensitivity

An *in vivo* field evaluation was conducted in Germany and Italy involving 100 dentists. Over 4,700 restorations were placed using Adper™ Scotchbond™ SE Self-Etch Adhesive. Dentists were asked to record instances of post-operative sensitivity. Table 1 shows the results, in which a very low rate of post-operative sensitivity was observed.

<table>
<thead>
<tr>
<th></th>
<th>Table 1: Post-operative sensitivity results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of dentists</td>
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<tr>
<td>Number of dentists</td>
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</tr>
<tr>
<td>encountering</td>
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</tr>
<tr>
<td>post-operative</td>
<td></td>
</tr>
<tr>
<td>sensitivity</td>
<td></td>
</tr>
<tr>
<td>Total number of cases</td>
<td>24</td>
</tr>
<tr>
<td>of post-operative</td>
<td></td>
</tr>
<tr>
<td>sensitivity</td>
<td></td>
</tr>
<tr>
<td>Total number of</td>
<td>4714</td>
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<tr>
<td>restorations placed</td>
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</tr>
<tr>
<td>Percentage of</td>
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</tr>
<tr>
<td>restorations having</td>
<td></td>
</tr>
<tr>
<td>post-operative</td>
<td></td>
</tr>
<tr>
<td>sensitivity</td>
<td></td>
</tr>
</tbody>
</table>
Step-by-Step Technique Guides
Direct Light Cure Restoration

3M ESPE
Adper™ Scotchbond™ SE
Self-Etch Adhesive
Direct Light Cure Restoration

1. Mix Liquid A and Liquid B
2. Apply adhesive to tooth
3. Activate for 20 seconds
4. Air for 10 seconds
5. Apply adhesive to tooth
6. Air for 10 seconds
Porcelain Repair

Adper™ Scotchbond™ SE
Self-Etch Adhesive
Porcelain Repair

1. 
2. H₂O
3. Air
4. 00:00:05
5. 00:00:10
6.
Porcelain Repair, Continued
Root Surface Desensitization

3M ESPE
Adper™ Scotchbond™ SE
Self-Etch Adhesive
Root Surface Desensitization

1. 
2. 
3. 
4. 
5. 
6. 

H2O

LIQUID A
LIQUID B
Root Surface Desensitization, Continued
Instructions for Use

General Information

Adper™ Scotchbond™ SE Self-etch adhesive, manufactured by 3M ESPE, is a simple to use, two-bottle, self-etch bonding adhesive with bottle A containing the aqueous primer and bottle B containing the acidic adhesive. The primer contains a color indicator which indicates complete coverage of the preparation. The color disappears upon addition of the adhesive, indicating activation of the acid and insuring that a proper etch is taking place. Adper™ Scotchbond™ SE Self-etch adhesive offers the dental practitioner a wide range of applications. These include bonding to all classes of light curing direct restorations as well as procedures involving porcelain, composite, and metal repair and root surface desensitization.

Recommendations

Adper™ Scotchbond™ SE Self-etch adhesive is cured by exposure to visible light. The light curing times instructed with this product assume the use of a 3M ESPE light curing unit, manufactured by 3M ESPE, or other dental visible curing light of comparable intensity. Curing lights should be checked often for proper output using a reliable metering system. Air used for drying should be free of oil and water contaminants.

Indications

- Bonding between dentin/enamel and composite filling materials
- Bonding between dentin/enamel and compomer filling materials
- Intraoral repair of porcelain, composite and metal using light-cure composite resin
- Desensitization of hypersensitive teeth/root surface desensitization

Contraindications

Adper™ Scotchbond™ SE Self-etch adhesive is suited for purely light-curing materials, but not for dual-curing or self-curing materials, and is not indicated for indirect applications including use in veneer placement.

Precautions

Precautionary Information for Patients

This product contains substances that may cause an allergic reaction by skin contact in certain individuals. Avoid use of this product in patients with known acrylate allergies. If prolonged contact with oral soft tissue occurs, flush with large amounts of water. If allergic reaction occurs, seek medical attention as needed, remove the product if necessary and discontinue future use of the product.

Precautionary Information for Dental Personnel

This product contains substances that may cause an allergic reaction by skin contact in certain individuals. To reduce the risk of allergic response, minimize exposure to these materials. In particular, avoid exposure to uncured product. If skin contact occurs, wash skin with soap and water. Use of protective gloves and a no-touch technique is recommended. Acrylates may penetrate commonly used gloves. If product contacts glove, remove and discard glove, wash hands immediately with soap and water and then re-glove. If allergic reaction occurs, seek medical attention as needed.

3M ESPE MSDSs can be obtained from www.mmm.com/MSDS or contact your local subsidiary.
Preparation

Remove loose preparation debris by spraying with water. Use 2-3 brief blows of air to dry the cavity. The cavity should only be dried to the extent that there is no water visible on the surface. Over-drying may result in post operative sensitivity. Clean untreated tooth structure with a rubber cup and an oil and fluoride-free cleaning paste (e.g. pumice paste); rinse thoroughly with water spray and dry.

Pulp Exposure

Use Vitrebond™ Plus Light Cure Glass Ionomer Liner/base, manufactured by 3M ESPE, in areas of deep cavity excavation such as Class I and II restorations. If pulp exposure has occurred, use a minimum amount of calcium hydroxide (e.g. Alkaliner, manufactured by 3M ESPE) followed by an application of Vitrebond™ Plus liner/base. Adper™ Scotchbond™ SE Self-etch adhesive will bond to Vitrebond™ Plus liner/base.

Instructions for bonding to dentin and cut enamel with a light cured composite

1. Isolation: a rubber dam is the preferred method of isolation
2. Lightly dry tooth
3. Dispense 1 drop of Liquid A into one of the dispensing wells, and 1 drop of Liquid B into the second dispensing well.
4. Wet brush tip with Liquid A. Apply to the entire bonding area so that a continuous red-colored layer is obtained on the surface. Discard this brush.
5. Wet second brush tip with Liquid B and scrub into the entire wetted surface of the bonding area. The red color will disappear quickly, indicating that the etching components have been activated. Continue scrubbing with moderate finger pressure for 20 seconds to ensure a proper etch.
6. Air dry thoroughly for 10 seconds to evaporate water. Adhesive should remain in place and be shiny in appearance upon completion of this step.
7. Re-coat brush with Liquid B, and apply second coat to the entire bonding surface. Lightly air thin adhesive layer to adjust film thickness/consistency.
8. Light cure for 10 seconds.
9. Restorative placement: Refer to manufacturer’s instructions for placement, cure and finishing of restorative material.

Note: for bonding to uncut enamel a separate etch using 3M ESPE Scotchbond™ etchant is recommended before application of Adper™ Scotchbond™ SE Self-etch adhesive.

Instructions for bonding to composite

1. Isolation: Rubber dam is the preferred method of isolation.
2. Roughen the existing material: Roughen the surface of existing composite using either a bur, diamond or a sandblast technique.
3. Dispense 1 drop of Liquid A into one of the dispensing wells, and 1 drop of Liquid B into the second dispensing well.
4. Wet brush tip with Liquid A. Apply to the entire bonding area so that a continuous red-colored layer is obtained on the surface. Discard this brush.
5. Wet second brush tip with Liquid B and scrub into the entire wetted surface of the bonding area. The red color will disappear quickly, indicating that the etching
components have been activated. Continue scrubbing with moderate finger pressure for 20 seconds to ensure a proper etch.

6. Air dry thoroughly for 10 seconds to evaporate water. Adhesive should remain in place and be shiny in appearance upon completion of this step.

7. Re-coat brush with LiquidB and apply second coat to the entire bonding surface. Lightly air thin adhesive layer to adjust film thickness/consistency.

8. Light cure for 10 seconds.

9. Restorative placement: Refer to manufacturer's instructions for placement, cure and finishing of restorative material.

Instructions for metal or porcelain repair

1. Isolation: Rubber dam is the preferred method of isolation.

2. Preparation: Clean the surface to be repaired with a slurry of plain flour of pumice. Rinse and dry thoroughly. Roughen the surface of existing metal or porcelain using either a bur, diamond or a sandblast technique. Be careful to remove all loose porcelain and bevel the margin. Remove surface glaze 1mm beyond the margin.

3. Silane treatment for porcelain and metal: Apply RelyX Ceramic Primer to the etched surface and dry.

4. Dispense 1 drop of LiquidA into one of the dispensing wells, and 1 drop of LiquidB into the second dispensing well.

5. Wet brush tip with LiquidA. Apply to the entire bonding area so that a continuous red-colored layer is obtained on the surface. Discard this brush.

6. Wet second brush tip with LiquidB and scrub into the entire wetted surface of the bonding area. The red color will disappear quickly, indicating that the etching components have been activated. Continue scrubbing with moderate finger pressure for 20 seconds to ensure a proper etch.

7. Air dry thoroughly for 10 seconds to evaporate water. Adhesive should remain in place and be shiny in appearance upon completion of this step.

8. Re-coat brush with LiquidB and apply second coat to the entire bonding surface. Lightly air thin adhesive layer to adjust film thickness/consistency.

9. Light cure for 10 seconds.

10. Masking: To opacify the metal before the final composite placement, mask the metal surface with a thin layer (0.25 - 0.5mm) of the appropriate 3M ESPE Masking Agent shade using a brush. Light cure each layer for 20 seconds.

11. Restorative placement, cure and finishing: Refer to manufacturer's instructions for placement, cure and finishing of restorative material.

Instructions for root surface desensitization

1. Lightly clean the root surface with flour of pumice. Rinse and blot dry.

2. Dispense 1 drop of LiquidA into one of the dispensing wells, and 1 drop of LiquidB into the second dispensing well.

3. Wet brush tip with LiquidA. Apply to the entire root surface so that a continuous red-colored layer is obtained on the surface. Discard this brush.

4. Wet second brush tip with LiquidB and scrub into the entire wetted surface of the root
surface area. The red color will disappear quickly, indicating that the etching components have been activated. Continue scrubbing with moderate finger pressure for 20 seconds to ensure a proper etch.

5. Air dry thoroughly for 10 seconds to evaporate water. Adhesive should remain in place and be shiny in appearance upon completion of this step.

6. Re-coat brush with Liquid[B] and apply second coat to the entire bonding surface. Lightly air thin adhesive layer to adjust film thickness/consistency.

7. Light cure for 10 seconds.

8. Remove the oxygen inhibited layer with a moistened gauze.

**Additional Notes**

It is extremely important that the adhesive Liquid[B] is scrubbed into the prepared surface for the entire 20 second period. Scrubbing the adhesive only partially or shortening the application time will compromise the etch pattern and have a negative effect on adhesion.

Disinfect the dispensing vials using an intermediate level disinfection process (liquid contact) as recommended by the CDC and endorsed by the ADA. Guidelines for Infection Control in Dental Health-Care Settings - 2003 (Vol.52; No. RR-17), Centers for Disease Control and Prevention.

**Disposal**

See the Material Safety Data Sheet (available at www.mmm.com/MSDS or through your local subsidiary) for disposal information.

**Storage and Shelf Life**

- Adper® Scotchbond™ SE Self-etch adhesive should be protected from light.
- Product should be stored between 2°C/35°F and 27°C/80°F.
- Shelf life of Liquids A and B is 24 months at room temperature.
- Do not use after the expiration date.

**Caution:** US Federal Law restricts this device to sale or use on the order of a dental professional.

**Customer Information**

No person is authorized to provide any information which deviates from the information provided in this instruction sheet.

**Warranty**

3M ESPE warrants this product will be free from defects in material and manufacture. 3M ESPE MAKES NO OTHER WARRANTIES INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining the suitability of the product for user’s application. If this product is defective within the warranty period, your exclusive remedy and 3M ESPE’s sole obligation shall be repair or replacement of the 3M ESPE product.

**Limitation of Liability**

Except where prohibited by law, 3M ESPE will not be liable for any loss or damage arising from this product, whether direct, indirect, special, incidental or consequential, regardless of the theory asserted, including warranty, contract, negligence or strict liability.