Filtek™ LS
Low Shrink Posterior Restorative System

Techniques and Results
Clinical Cases
What a composite that shrinks less than 1%\(^1\) can mean to your practice.

When restoring a tooth, a dentist takes great care to ensure a “perfect margin” – a smooth transition between tooth structure and restoration, free of interruptions or gaps. Yet, even with a perfect technique, achieving lasting marginal integrity is a challenge because all composites shrink. Shrinkage is intrinsic to resin chemistry – which is why, to date, no methacrylate-based composite has solved the shrinkage problem.

As a global leader in restorative solutions, 3M ESPE took on the challenge of solving the problem of polymerization shrinkage and its effect on marginal integrity. After 10 years of intensive research and development, we introduced the first composite to achieve less than 1% volumetric shrinkage: Filtek™ LS Low Shrink Posterior Restorative. Based on an innovative silorane chemistry, it works with a dedicated adhesive – 3M™ ESPE™ LS System Adhesive Self-Etch Primer and Bond – to maximize marginal integrity.

In addition to its low-shrink performance, you’ll like the way it handles.

- Impressive nonstick qualities
- Very good initial adaptation of restorative to bond film allows for easy placement
- Excellent operatory light stability – up to 6 minutes working time
- There’s no slumping – the filling holds its shape
- Available in the delivery you prefer: capsule or syringe

When selecting a composite for the posterior region, you want assurance it will stand up to flexural forces during chewing.

- Proven to have excellent compressive strength for stress-bearing restorations
- High flexural strength protects the tooth from fractures and stabilizes it at the same time
- Wear resistance comparable to that of proven composites – ACTA test data on file
- Clinically proven strength and durability

---

\(^1\) Results using bonded-disc method. Source: 3M ESPE internal data

---

The Filtek™ LS Low Shrink Posterior Restorative System is a key to excellent margins. It can help alleviate clinical symptoms associated with volumetric shrinkage, polymerization stress and marginal gaps.
Filtek LS restorative provides natural-looking esthetics patients prefer.

- Available in 4 popular shades that blend easily with surrounding teeth: A2, A3, B2, C2
- Holds its shape so you can create beautifully shaped, natural-looking restorations
- Fast and easy to polish
- Low water uptake and decreased exogenic staining

Due to a chameleon effect, you can achieve very good esthetics.

Filtek™ LS
Low Shrink Posterior Restorative System

Four case studies demonstrate Filtek LS Low Shrink Posterior Restorative in a variety of clinical situations.

In four case studies on the following pages, Dr. Gabriel Krastl demonstrates techniques for posterior restorations using Filtek LS restorative. All of the restorations presented were performed with a single composite – and no stains were used for customization.

**Clinical Situation** | **Page**
--- | ---
Case 1: Cusp build-up | 4
Case 2: Amalgam replacement | 6
Case 3: MOD restorations | 8
Case 4: Minimally invasive restorative treatment | 10

Dr. Gabriel Krastl
Department of Periodontology, Endodontics and Cariology
University of Basel, Switzerland
This case study focuses on the restoration of a maxillary molar.

The existing, inadequate restoration led to the development of secondary caries and, presumably as a consequence, to a fracturing of the distolingual cusp. Following complete removal of the caries, the self-conditioning LS System Adhesive Self-Etch Primer was applied with a black microbrush, followed by gentle air dispersion and light curing. Next, the LS System Adhesive Bond was applied with the green microbrush, followed by gentle air dispersion and light curing. Filtek LS restorative was applied to the cavity. The distolingual wall was built up to create a purely occlusal cavity, thus making it easy to achieve an anatomically correct restoration by applying horizontal and diagonal layers. After removal of the rubber dam, the occlusion was checked. Minor corrections to the distolingual cusp of the tooth were required. Two weeks after treatment, the restoration was virtually invisible, thanks to the material’s chameleon effect and the enamel-like surface after polishing.
Build-up of marginal ridge and distolingual cusp

Removal of matrix

Application of Filtek™ LS Low Shrink Posterior Restorative

Horizontal layer on cavity floor

Build-up of buccal sections of occlusal surface

Restoration after 2 weeks: Distolingual view

Restoration after 2 weeks: Buccal view

Restoration after 2 weeks: Distolingual view
The following clinical case highlights the replacement of an inadequate amalgam restoration on a mandibular molar.
Following caries removal and preparation of the cavity margins, mesially and distally, contoured section matrices were placed and secured with wooden wedges and separating rings. In this way, the approximal tooth contours were reproduced, making it possible to create a restoration without any excess material. The LS System Adhesive Self-Etch Primer was rubbed into the cavity, dried with an air stream and light cured. Then the LS System Adhesive Bond was applied, immediately dried with an air stream and light cured. Using the centripetal layering technique, the marginal ridges were first built up to an optimal height using Filtek LS restorative. After removal of the matrices, the remaining shallow cavity was filled with two diagonal layers, respecting the tooth anatomy.
Removal of separating rings

Removal of sectional matrices

Build-up of lingual sections of occlusal surface

Completed restoration
Case 3

Filtek™ Supreme Plus Universal Restorative (tooth 4) and Filtek™ LS Low Shrink Posterior Restorative (tooth 3)

Case 3: MOD restorations

The case study shows the reconstruction of maxillary right second premolar and maxillary right first molar after removal of the old, fractured restorations.

The premolar was built up with Filtek Supreme Plus restorative prior to commencing reconstruction of the large molar cavity, which involved three surfaces. The prepared surfaces were first primed with LS System Adhesive Self-Etch Primer, then coated with LS System Adhesive Bond. The first layer of Filtek LS restorative was applied to the cavity floor. Then the marginal ridges were built up. Subsequent removal of the matrix facilitated anatomical modeling of the occlusal contours. The necessary finishing and polishing steps can thus be reduced to a minimum. A comparison of the two restored teeth demonstrates that good esthetic results can be achieved in the posterior region using Filtek LS restorative.
Application of Filtek™ LS Low Shrink Posterior Restorative

First layer of Filtek™ LS Low Shrink Posterior Restorative on the cavity floor

Build-up of marginal ridges

Removal of matrix

Build-up of palatal sections of occlusal surface

Completed restoration

Situation immediately after polishing

Clinical situation after 6 weeks
Case 4: Minimally invasive restorative treatment

The following clinical case study describes the restorative treatment performed following excavation of hidden fissure caries in the distal pits of a maxillary molar and a superficial lesion in the central pit.

The existing restoration, located lingually in relation to the deep caries, was also removed. The resulting distal cavity reflects the extent of the severely undermining caries. The consequent unfavorable C factor of the cavity required use of a composite that offered the advantages of minimal polymerization shrinkage and reduced polymerization stress. The prepared cavity was first primed with LS System Adhesive Self-Etch Primer, then coated with LS System Adhesive Bond. The cavity was restored with Filtek LS restorative – applied in three layers. The restoration was finished and polished using conventional rotary instruments.
More studies.

More than 40 in vitro and in vivo studies have already been conducted with Filtek™ LS Low Shrink Posterior Restorative. The in vivo studies with the new composite have been running for almost two years at two European universities. The one-year results of the in vivo studies [5] and the final results of the in vitro studies demonstrate a new milestone in restorative dentistry. These studies have been compiled in a brochure, available to download as a PDF file at www.3MESPE.com.

References


Filtek™ LS Low Shrink Posterior Restorative System offers significant advantages.

- The first composite to shrink less than 1%
- Strong and durable
- Low water sorption for substantially decreased exogenic staining
- Radiopaque
- Available in 4 shades: A2, A3, B2, C2 (capsule or syringe)
- Up to 6 minutes operatory light stability
- Easy to handle; nonsticky; excellent ability to hold shape
- Dedicated self-etch adhesive with excellent bond strength
- Excellent marginal integrity

Ordering Information

<table>
<thead>
<tr>
<th>Item #</th>
<th>Product Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>4901I</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Capsule Intro Kit</td>
</tr>
<tr>
<td></td>
<td>Kit includes: 80 capsules – 0.2g each (4 bottles with 20 capsules each, shades A2,</td>
</tr>
<tr>
<td></td>
<td>A3, B2, C2); 1 vial Primer – 5ml; 1 vial Bond – 5ml; 100 microbrushes (50 black,</td>
</tr>
<tr>
<td></td>
<td>50 green); 1 mixing well; 1 shade guide</td>
</tr>
<tr>
<td>4902I</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Syringe Intro Kit</td>
</tr>
<tr>
<td></td>
<td>Kit includes: 4 syringes – 4g (1 each of shades A2, A3, B2, C2); 1 vial Primer –</td>
</tr>
<tr>
<td></td>
<td>5ml; 1 vial Bond – 5ml; 100 microbrushes (50 black, 50 green); 1 mixing well; 1</td>
</tr>
<tr>
<td></td>
<td>shade guide</td>
</tr>
<tr>
<td>4901TK</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Capsule Trial Kit</td>
</tr>
<tr>
<td></td>
<td>Kit includes: 20 capsules – 0.2g each, shade A2; 1 vial Primer – 5ml; 1 vial Bond</td>
</tr>
<tr>
<td></td>
<td>– 5ml; 100 microbrushes (50 black, 50 green); 1 mixing well</td>
</tr>
<tr>
<td>4902TK</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Syringe Trial Kit</td>
</tr>
<tr>
<td></td>
<td>Kit includes: 1 syringe – 4g, shade A2; 1 vial Primer – 5ml; 1 vial Bond – 5ml;</td>
</tr>
<tr>
<td></td>
<td>100 microbrushes (50 black, 50 green); 1 mixing well</td>
</tr>
<tr>
<td>4901A2</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Capsule Refill A2</td>
</tr>
<tr>
<td></td>
<td>20 capsules – 0.2g each, shade A2</td>
</tr>
<tr>
<td>4901A3</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Capsule Refill A3</td>
</tr>
<tr>
<td></td>
<td>20 capsules – 0.2g each, shade A3</td>
</tr>
<tr>
<td>4901B2</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Capsule Refill B2</td>
</tr>
<tr>
<td></td>
<td>20 capsules – 0.2g each, shade B2</td>
</tr>
<tr>
<td>4901C2</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Capsule Refill C2</td>
</tr>
<tr>
<td></td>
<td>20 capsules – 0.2g each, shade C2</td>
</tr>
<tr>
<td>4902A2</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Syringe Refill A2</td>
</tr>
<tr>
<td></td>
<td>1 syringe – 4g, shade A2</td>
</tr>
<tr>
<td>4902A3</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Syringe Refill A3</td>
</tr>
<tr>
<td></td>
<td>1 syringe – 4g, shade A3</td>
</tr>
<tr>
<td>4902B2</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Syringe Refill B2</td>
</tr>
<tr>
<td></td>
<td>1 syringe – 4g, shade B2</td>
</tr>
<tr>
<td>4902C2</td>
<td>Filtek™ LS Low Shrink Posterior Restorative Syringe Refill C2</td>
</tr>
<tr>
<td></td>
<td>1 syringe – 4g, shade C2</td>
</tr>
<tr>
<td>4903</td>
<td>3M™ ESPE™ LS System Adhesive Self-Etch Primer and Bond</td>
</tr>
<tr>
<td></td>
<td>1 vial Primer – 5ml; 1 vial Bond – 5ml; 100 microbrushes (50 black, 50 green)</td>
</tr>
<tr>
<td>4903P</td>
<td>3M™ ESPE™ LS System Adhesive Self-Etch Primer Refill</td>
</tr>
<tr>
<td></td>
<td>1 vial Primer – 5ml</td>
</tr>
</tbody>
</table>

Customer Care Center: 1-800-634-2249  www.3MESPE.com

3M™ ESPE™ Filtek™ LS Low Shrink Posterior
Restorative Capsule Intro Kit

3M™ ESPE™ Filtek™ LS Low Shrink Posterior
Restorative Syringe Intro Kit

Dental Products
3M Center
Building 275-2SE-03
St. Paul, MN 55144-1000
U.S.A.
1-800-634-2249

3M Canada
Post Office Box 5757
London, Ontario N6A 4T1
Canada
1-888-363-3685

Please recycle. Printed in U.S.A.
© 3M 2008. All rights reserved.
70-2013-0086-3

3M, ESPE and Filtek are trademarks of 3M or 3M ESPE AG. Used under license in Canada.