3M™ ESPE™
Retraction Capsule

Technical Data Sheet

Indications
3M ESPE retraction paste is indicated for the temporary tissue retraction of the marginal gingiva to provide a dry sulcus when the periodontium is healthy, such as:
- Taking impressions (material-based or digital)
- Preparation of temporary casts
- Preparation of Class II and V fillings
The product must not be used in patients suffering from a diseased periodontium, open furcations or exposed bone.

Introduction
For more than 45 years, 3M ESPE has led the way in the field of dental impression. Whether with the invention of Impregum™ Polyether Impression Material or the digital “3D-in-Motion” Technology—solutions developed by 3M ESPE deliver clinical results that help set the standard for patient care and dental practice success. Now the innovative 3M™ ESPE™ Retraction Capsule sets another groundbreaking milestone: it is a simple and effective means of gingival retraction. Because of the capsule’s fine tip, the astringent retraction paste can easily be inserted right where it belongs—right into the sulcus.

Product Description
3M ESPE Retraction Capsule delivers a retraction paste that contains 15% aluminum chloride. The astringent retraction paste is placed directly into the sulcus via a patented, easy-to-use, hygienic unit-dose capsule. The capsules are compatible with most composite dispensers.

1.0mm
1.3mm
1.6mm

The 3M ESPE extra-fine tip fits directly into the sulcus.
Clinical Performance

Gingival retraction—the prerequisite for successful precision impressions

Gingival retraction plays an important role in accurate impressions. Normally, the margin of preparation is not accessible for impression material when located para- or subgingivally, and the sulcus may be filled with saliva, blood or other fluids after tooth preparation. Therefore, effective retraction is needed to create a space around the preparation and a clean and dry sulcus area.

Key results of field testing

After field testing, over 260 dentists worldwide provided clinical feedback on the 3M™ ESPE™ Retraction Capsule. Here’s what they had to say:

- **86%** of dentists were overall satisfied or very satisfied
- **74%** of dentists were satisfied or very satisfied with gingival retraction/sulcus opening
- **93%** of dentists were satisfied or very satisfied with the hemostasis
- **84%** of dentists would recommend the 3M ESPE Retraction Capsule to colleagues

Also great for digital impressions

The 3M ESPE Retraction Capsule meets the special needs of digital impression systems. In a survey with customers (n = 13) using a digital impression system (Lava™ Chairside Oral Scanner C.O.S.), users were asked to evaluate the 3M ESPE Retraction Capsule as part of their soft tissue management prior to scanning a digital impression:

- **92%** stated that the 3M ESPE Retraction Capsule is a very suitable product for gingival retraction
- **100%** stated that the 3M ESPE Retraction Capsule has very good hemostatic properties
- **85%** stated that the 3M ESPE Retraction Capsule is well suited to place the retraction paste into the sulcus
- **77%** stated that the 3M ESPE Retraction Capsule makes the retraction process more efficient
- **92%** would recommend the 3M ESPE Retraction Capsule to colleagues
**Advantages of the 3M ESPE Retraction Capsule**

**Advantages vs. Cords**

84% of dentists stated using the 3M ESPE Retraction Capsule is faster than using retraction cords.

85% of dentists stated the risk of posthemorrhage after using 3M ESPE Retraction Capsule is lower than using retraction cords.

**Fig. 1: Time needed to use 3M™ ESPE™ Retraction Capsule, N = 227**

Source: Field test with dentists worldwide in 2010 and 2011.

**Summary:** 84% of dentists stated using the 3M ESPE Retraction Capsule is faster than using retraction cords. Dentists reported the capsule being 50% faster on average than cords.

**Advantages vs. Competing Pastes**

80% of dentists stated the paste application with the 3M ESPE Retraction Capsule is easier than with competitive retraction pastes.

59% of dentists stated the removal of the 3M ESPE Retraction Capsule is faster than competitive retraction pastes.

**Fig. 3: Ease of application into the sulcus, N = 99, paste users**

Source: Field test with dentists worldwide in 2010 and 2011.

**Fig. 4: Time needed to rinse off 3M™ ESPE™ Retraction Capsule, N = 99, paste users**

Source: Field test with dentists worldwide in 2010 and 2011.

**Summary:** 3M ESPE Retraction Capsule is easier to apply and overall more convenient to use. It is also faster to remove than other retraction pastes.

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Source: Field test with dentists worldwide in 2010 and 2011.
Scientific Data

Retraction pastes vs. cords: effect on gingival health

A recent study investigated the effect of retraction materials on gingival health and, in particular, the injury of the gingival sulcular epithelium. The commonly used impregnated retraction cords require proper tissue manipulation and are technique-sensitive. Retraction pastes were found to be better than cords: as assessed histologically, they respect the periodontium. Improper handling of cords may lead to gingival recession and marginal exposure of the prosthesis, which severely affects esthetics. Moreover, the retraction procedure is inconvenient, time-consuming and uncomfortable for the patient. The study confirmed that teeth that had received medicated cords exhibited significant gingival recession after operation, while cordless types showed no significant findings.

In another study, it was shown that the use of cords as well as the use of paste (Expasy) caused a temporary gingival inflammation, which was greatest with Expasy. All the cases of inflammation recovered. Pastes did not induce bleeding during or after retraction.

Influence on bond strength of self-adhesive cements

It is well known that residual astringents on the prepared tooth have a negative influence on the bond strength of bondings or cements when cementing final restorations. In an in vitro study, the effect of Expasy and 3M ESPE Retraction Capsule on the bond strength of two self-adhesive cements, 3M™ ESPE™ RelyX™ Unicem Self-Adhesive Universal Resin Cement in the Clicker™ Dispenser and Maxcem Elite, on human superficial dentin was investigated. The bond strength of RelyX Unicem cement decreased when retraction paste was used; the decrease with Expasy was significantly greater than retraction paste by 3M ESPE. The bond strength of Maxcem Elite cement improved somewhat when placed on dentin that had been exposed to retraction paste by 3M ESPE, in both the rinsed and unrinsed conditions.

Rinse time

In another study, it was shown that the astringent retraction paste from 3M ESPE was easier to rinse off than Expasy and Expasy Premium. The authors state that “… this may influence subsequent procedural steps by reducing contamination …” The innovative 3M ESPE retraction paste can be easily rinsed off.
Product Features and Benefits

**General advantages:**
- Enables a clean, dry sulcus and a long-lasting robust hemostasis
- Effectively opens the sulcus
- Hygienic unit-dose capsule

**Versus dental retraction cords:**
- Convenient and time-saving retraction process: 50% faster
- Lower risk of hemorrhage after removal
- Gentle on tissue for improved patient comfort

**Versus competing pastes:**
- Easy access into the sulcus
- Better interproximal access due to capsule’s extra-fine tip
- Compatible with most composite dispensers

No dedicated dispenser needed. The unit-dose capsule fits most composite dispensers.
How to use the 3M™ ESPE™ Retraction Capsule

Simple steps to a clean and dry working field

1. The 3M™ ESPE™ Retraction Capsule fits most composite dispensers. Extrude a small amount of paste and discard.

2. Insert retraction capsule tip into the sulcus. The tissue is mechanically retracted.

3. Slowly and steadily, inject astringent retraction paste into sulcus. Completely fill the sulcus.

4. OPTIONAL: PROCEDURE WITH CORDS
For greater gingival deflection, the astringent retraction paste can be used in combination with retraction cords.

5. Leave astringent retraction paste on for a minimum of 2 minutes.

6. Completely remove astringent retraction paste with air-water spray and suction.


