


**From Topical to the Treasure Chest:  
Pit and Fissure Sealants**

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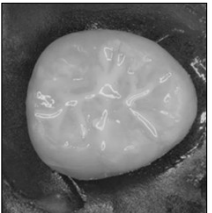
**PIT AND FISSURE SEALANTS**

**Underutilized  
and  
Undervalued**



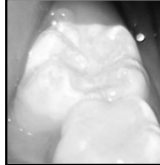
**PIT AND FISSURE SEALANTS**

- ▶ Sealants have been described as:
- ▶ material introduced into occlusal pits and fissures of caries-susceptible teeth
- ▶ forming a micromechanically-bonded, protective layer
- ▶ cutting access of caries producing bacteria from their source of nutrients



**SEALANTS**

- ▶ Occlusal surfaces account for only 12.5% of total tooth surface area but include 50-80% of caries in 5-17 year olds
- ▶ Fluoride less effective in the prevention of pit and fissure caries
- ▶ Effectiveness
  - ▶ After 2 years: 80-100% reduction

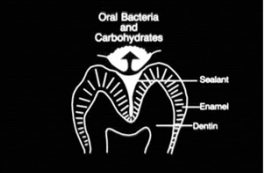


**SEALANT INDICATIONS**

- ▶ Caries risk assessment
  - ▶ History of caries
  - ▶ Type of caries
  - ▶ Oral hygiene status
  - ▶ Fluoride environment and status
- ▶ Tooth anatomy
  - ▶ Deep/narrow pits vs. Wide/narrow pits
- ▶ Age of tooth
  - ▶ Best to seal a tooth ASAP

**EFFECTS OF SEALANT**

- 1) Fill pits and fissures with a resin (preferred) or GI material
- 2) Render pits and fissures easier to clean by toothbrushing and mastication
- 3) Deny cariogenic bacteria their preferred habitat



### Pit and Fissure Sealants

- ▶ **Isolation** is A KEY FACTOR in a sealant clinical success
- ▶ Contamination with saliva results in decreased bond strength of the sealant to enamel
- ▶ Studies have reported Sealants success levels: 80%-90% after 10 or more years (with recall and proper maintenance)

### STEPS FOR SEALANT APPLICATION

1. Select material
2. Isolate tooth/teeth to be sealed (rubber dam preferred)
3. Pumice
4. Rinse THOROUGHLY
5. Etch for 20 seconds
6. Rinse for 15 seconds
7. Apply sealant, remove access with a microbrush
8. Examination, check occlusion and adjust

### FISSURE SEALANT & FLOWABLE COMPOSITE


- ▶ Low viscosity
- ▶ Syringe/tip delivered
- ▶ Radiopaque
- ▶ 58% filled
- ▶ Fluoride releasing
- ▶ Drying agent used




UltraSeal XT plus

### DIFFERENT ISOLATION TECHNIQUE


Isoite/Isodry




Rubber Dam



Parotid shields



Cotton roll holders




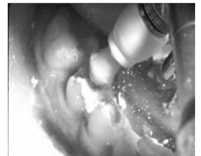
### SEALANTS

- ▶ Following isolation, carefully examine tooth for caries
- ▶ Because fluoride renders the outer layer of enamel more resistant to demineralization or acid etching;
- ▶ Any fluoride treatment should be accomplished after the sealant is placed

### STEPS OF SEALANT APPLICATION

- ▶ Isolate teeth with rubber dam or Isolite
- ▶ Clean teeth with pumice using a prophylaxis cup
- ▶ Rinse and dry
- ▶ Enameloplasty

**Not indicated**



**ETCH FOR 20 SECONDS**

Two images illustrating the etching process. The left image shows a clinical view of a tooth being etched with a brush. The right image is a scanning electron micrograph (SEM) showing the porous, irregular surface created by the etching process.

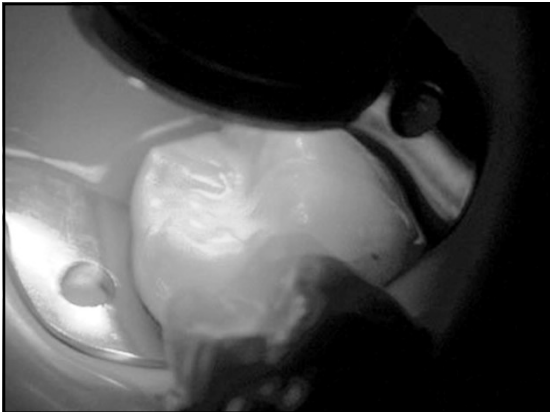
**STEPS FOR SEALANT APPLICATION**

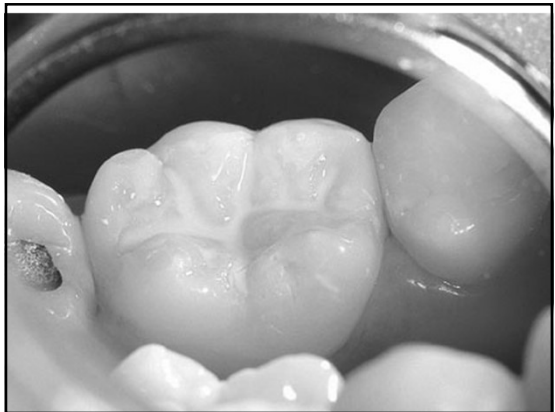
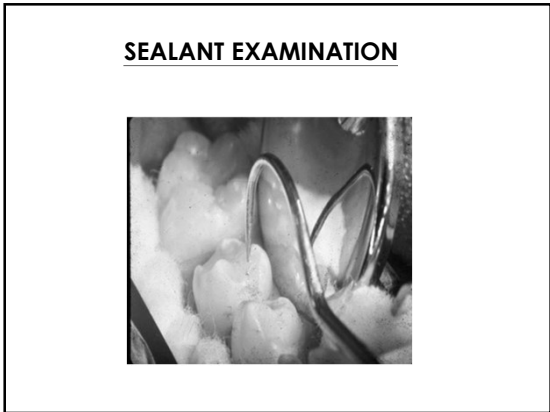
Rinse for 15 seconds and dry

A photograph of a tooth being rinsed with water. The water is being applied to the tooth surface, likely to remove the etchant.

A photograph showing a drying agent being applied to a tooth. The drying agent is a white, powdery substance that is being applied to the tooth surface.

A photograph showing a sealant being placed on a tooth. The sealant is a white, thick material that is being applied to the tooth surface.





**SEALANTS**

**Factors Influencing Sealant Retention**


- ▶ **Position of teeth in mouth**- retention increases in more mesial teeth; retention better in mandibular teeth
- ▶ **Skill of the operator**
- ▶ **Soft tissue level and proximity to pits and fissures**

**SEALANT PLACEMENT TECHNIQUES**

- There is limited and conflicting evidence that mechanical preparation with a bur results in higher retention rates in children
- There is limited and inconclusive evidence in favor of using air abrasion as a cleaning method before acid etching to improve sealant retention

Jean Beauchamp, et al , Evidence-based clinical recommendations for the use of pit-and-fissure sealants. A report of the American Dental Association Council on Scientific Affairs ADA, Vol. 139, March 2008

**CONTACT INFORMATION**



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