

**D.Y.PATIL DENTAL SCHOOL**

**Department of Public Health Dentistry**

# PIT & FISSURE SEALANTS

# INTRODUCTION

- Sealants protect the occlusal surfaces, inhibiting bacterial growth and providing a smooth surface that increases the probability that the surface will stay clean.

# CRITERIA FOR THE IDEAL SEALANT

- 1. A viscosity allowing penetration into deep and narrow fissures even in maxillary teeth.
- 2. Adequate working time.
- 3. Rapid cure.
- 4. Good and prolonged adhesion/bonding to enamel.
- 5. Low sorption and solubility.
- 6. Resistance to wear.
- 7. Be compatible with the oral tissues (minimum irritation to tissues).
- 8. Cariostatic action

# TYPES OF FISSURES



U Type : Almost the same width from top



V Type: Wide at top and gradually narrowing at base



I Type: Extremely narrow slit



IK Type: Extremely narrow slit with a larger space at bottom



Inverted Y

# • **Types of Sealants**

## • **A. Based on generation**

- 1. Generation 1 Sealant (photocured via UV light).
- 2. Generation 2 Sealant (auto or chemically-cured).
- 3. Generation 3 Sealant (photocured via visible light).
- 4. Fluoride containing sealants.

## • **B. Based on fillers**

- 1. Unfilled.
- 2. Filled sealant (fillers increase abrasion resistance, bond strength).
- Fillers: glass and quartz particles.
- 3. Fluoride –Releasing.

- **C. Based on Color**

- Helps in quick identification for evaluation during maintenance assessment:

- 1. Clear: Esthetic but difficult to detect in follow-up

- (Fig. 33.6).

- 2. Tinted/opaque sealant: easy to detect.

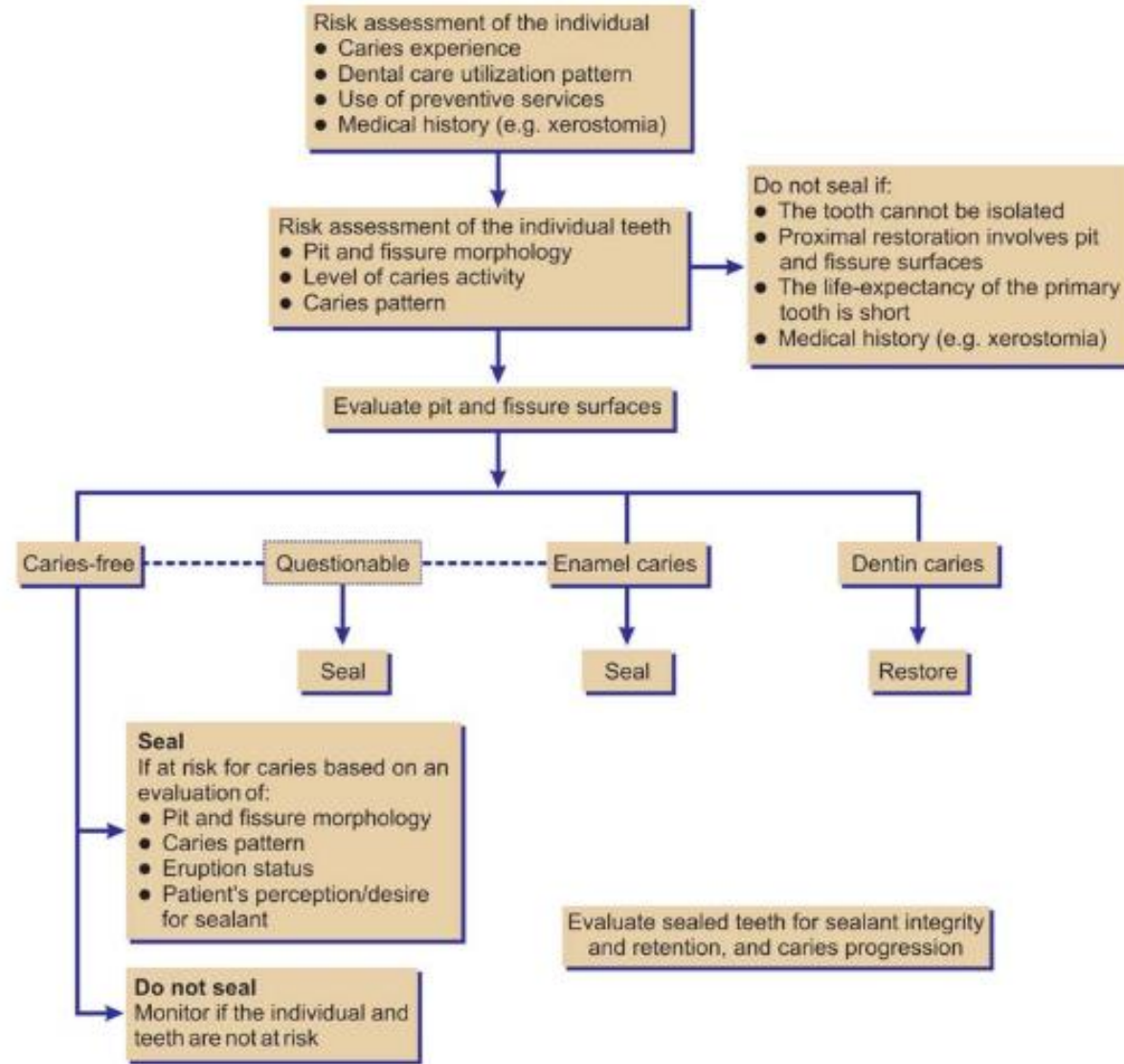
- **D. BIS-GMA versus non BIS-GMA sealant**

<b>TYPES OF PIT AND FISSURE SEALANTS</b>		
<b>1. Based on curing method</b>		
1st generation	UV light cured at 356 nm	Eg:alphaseal,nuvalite,alphalite
2nd generation	Self cured	Eg:concise white sealant,delton
3rd generation	Blue visible light cured at 490 nm	Eg:stephen K.W strang
4th generation	flouride releasing	Eg: Toma l.morphis , Jack toumba

### Advantages and disadvantages of the chemically-cured and light-cured sealant systems

	<i>Advantages</i>	<i>Disadvantages</i>
Self-cure:	<ol style="list-style-type: none"><li>1. Simple to use</li><li>2. Less expensive—does not require additional equipment</li></ol>	<ol style="list-style-type: none"><li>1. Once mixing has started, the operator must continue mixing and immediately place the sealant, or stop and make a new mix if a problem should occur.</li><li>2. The catalyst and base must be mixed prior to placement, increasing the chance of incorporating air bubbles into final product.</li></ol>
Light-cure:	<ol style="list-style-type: none"><li>1. Operator has control over the initiation of polymerization</li><li>2. Supplied as single liquid so no mixing is required.</li></ol>	<ol style="list-style-type: none"><li>1. Requires extra-piece of equipment that can break down.</li><li>2. High cost of curing light and shorter shelf-life of material.</li></ol>

### Guideline for Sealant Use in Individual Care Programs



# INDICATIONS FOR USE

- A sealant is indicated for children and adults:
  - 1. Who may be at moderate or high risk of developing dental caries, for a variety of reasons.
  - 2. With incipient caries (limited to enamel of pits and fissures).
  - 3. Who have sufficiently erupted permanent teeth with susceptible pits and fissures.
  - 4. Who have existing pits and fissures that are anatomically susceptible pits and fissures.
  - 5. A deep or irregular fissure, fossa, or pit is present, especially if it catches the tip of the explorer (for example, occlusal pits and fissures, buccal pits of mandibular molar, lingual pits of maxillary incisors).
  - 6. The fossa selected for sealant placement is well isolated from another fossa with a restoration present.
  - 7. An intact occlusal surface is present where the contralateral tooth surface is carious or restored.

# CONTRAINDICATIONS

- 1. Patient behavior does not permit use of adequate dry field (isolation) techniques throughout the procedure.
- 2. There is an open occlusal carious lesion.
- 3. Caries, particularly proximal lesions, exist on other surfaces of the same tooth (radiographs must be current).
- 4. A large occlusal restoration is already present.
- 5. If pits and fissures are well coalesced and self-cleansing.
- 6. Life-expectancy of primary tooth is limited.
- 7. When patients is allergic to methacrylate.

# Procedure

- Step 1: Prepare the Teeth
- Step 2: Isolate the Teeth
- Step 3: Dry the Surfaces
- Step 4: Etch the Surfaces
- Step 5: Rinsing and Drying the Teeth
- Step 6: Application of Sealant Material
- Step 7: Evaluate the Sealant
- Step 8: Occlusal Evaluation
- Step 9: Re-evaluation



Cleaning Pit & Fissure



Apply FineEtch



Cleaning



Light-cure it for 20 seconds



Apply Seal-it

