

Pit-and-Fissure Dental Sealants

Pit-and-fissure sealants are a wonderful way to prevent and control cavities. Dental Caries is a disease caused by bacteria on the teeth, exposed over time to fermentable carbohydrates, leading to a break in the tooth enamel. Grooves on biting surfaces of teeth, also termed “Pits-and-Fissures,” trap food debris and promote the presence of a bacterial biofilm, thereby increasing the risk of developing carious lesions (commonly referred to as “cavities”).

Various materials have been used as Pit-and-Fissure sealants since the late 1960’s. At **Visalia Pediatric Dentistry** we used the *Embrace WetBond Pit & Fissure Sealant* made by Pulpdent. We have selected this specific type of sealant because of its high rate of retention and resistance, its ability to strengthen the tooth once placed (published potential for fluoride release), its safety and because of its ability to be applied effectively to both wet and dry teeth. Additionally, to accommodate those with any additional sensitivities, we are happy to say that this product does not contain Bisphenol A, Bis-GMA, or any BPA derivatives.

Generally speaking, across the board sealants are an extremely successful preventive approach to avoiding biting surface cavities. *Studies have demonstrated that a well-placed and maintained sealant, supported by high quality at-home oral hygiene and an appropriate diet can result in a reduction in the caries rate of treated teeth by 80% -92%.*

The following is of a magnified view of a groove/fissure of a permanent molar, along with a single toothbrush bristle. As you can see, the extremely narrow nature of these grooves can lead to pooled areas of food debris and bacteria that cannot be washed away using a

toothbrush. Over time, these pools of bacteria can form cavities on the biting surfaces of teeth, even in the presence of well-established oral hygiene routines at home.



At **Visalia Pediatric Dentistry**, when we place a sealant, we first prepare the tooth for treatment by isolating it from any moisture, then we clean out its grooves. Once clean and dry, we treat the grooves with a phosphoric acid etch (making sure to flow it deep into the grooves), and this will create retentive micoundercuts in the enamel. We then rinse away the etch completely, we again dry the tooth

completely to ensure adequate etching, and then flow the sealant material into the deepest reaches of a tooth's biting surface grooves, pits, and fissures. The sealant material is hardened using a curing light, and thus we create a physical/mechanical blockade against bacteria working its way into the unbrushable areas of a tooth.

You can see how a well maintained sealant should appear in this comparison image of "Before" and "After" sealant placement. The image on the right was taken years after the original placement date of the sealant.



On occasion, heavy duty biting forces or aggressive chewing/grinding practices will chip away some of the visible portions of a sealant. We check each sealed tooth at every exam, and if we see that a sealant has chipped away, we might recommend "patching" or even at times re-sealing the tooth, to ensure we are doing all we can to prevent biting surface cavities. Research has show that even if the visible portions of the sealant have broken away, at times the deeper portions of sealant material are retained and continue to offer protective benefit.