

Tips from practicing dentists on using products to the best advantage

Product Category SEALANTS

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Practice location: Teaneck, NJ
Type of practice: General Practice
Years in practice: 29
System/product to be described: BioCoat Bioactive Resin Pit and Fissure Sealant
Manufacturer: Premier Dental Products Company
Company Website: www.premusa.com

Description of this product and its benefits to the dental patient:

Pit-and-fissure sealants help prevent and arrest dental caries by keeping cariogenic bacteria from accessing pits and fissures and already present bacteria from accessing fermentable carbohydrates and metabolizing them to produce the acid that demineralizes tooth structure. In 2016, the American Dental Association and the American Academy of Pediatric Dentistry issued joint recommendations supporting the use of pit-and-fissure sealants in primary and permanent molars with sound or noncavitated carious occlusal surfaces in children and adolescents. Historically, dental sealant materials have been based on either glass ionomer or resin technology. Both have advantages and disadvantages; however, the success of pit-and-fissure sealants depends in large part on their long-term retention and durability. Despite fluoride release from glass ionomer-based sealants, their lower tensile strength and wear



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resistance can make them prone to premature dislodgment, and they may be more appropriate for newly erupting teeth. By comparison, resin-based sealants offer higher strength, improved wear resistance, and lower solubility in the oral environment. Owing to these factors, retention of resin-based sealants can be superior to glass ionomer sealants, especially in teeth undergoing mastication. A new resin-based sealant, BioCoat Bioactive Resin Pit and Fissure Sealant, contains microcapsules containing fluoride, calcium, and phosphate

Figure 1: BioCoat Bioactive Resin Pit and Fissure Sealant.

Figure 2: Occlusal view of teeth nos. 28, 29, and 30 after 37% phosphoric acid has been applied.

Figure 3: The phosphoric acid on teeth nos. 28, 29, and 30 has been rinsed away, and the teeth have been isolated and dried. Note the extensions of the etching pattern.

Figure 4: Cured BioCoat sealants in place for teeth nos. 28, 29, and 30. Note the natural white color and that the sealants do not extend past the etched surface of the tooth.

developed using SmartCap Technology. BioCoat is designed to include the strengths of resin sealants (that is, retention and durability) but potentially provide remineralization previously not possible with resin. BioCoat includes microcapsules that permit long-term ion release, high enamel fluoride uptake, and ion recharge. BioCoat is available in natural white shade and is dispensed via 1.2-milliliter syringes and single-use disposable tips.

Step-by-step description of how this product is used with a patient:

A 13-year-old girl came in to have pit-and-fissure sealants placed on teeth nos. 28, 29, and 30. The teeth being sealed were fully erupted and had no detectable caries. The patient's parent consented to the treatment. I cleaned the teeth

before the sealant procedure using pumice and a prophyl angle on a slow-speed handpiece. Alternatively, the grooves of the teeth could be debrided using an air abrasion system or a small fissure preparation bur. I applied Premier Etch phosphoric acid 37% to the occlusal surfaces for 20 seconds and then thoroughly rinsed it away using high evacuation suction (figure 2). After water rinsing and drying, I isolated the area using cotton rolls (Figure 3). Using the syringe tip, or possibly a small microbrush, I slowly introduced BioCoat into the pits and fissures of teeth nos. 28, 29, and 30. I took care to not let sealant flow beyond the etched area of the tooth, and I used an explorer to facilitate extension into all the grooves and eliminate any possible bubbles (Figure 4). I cured each sealant using a light-curing unit (of at least 600 milliWatt per square centimeter) for 20 seconds. Proper light-curing technique includes keeping the light guide as close as possible to the tooth without actually touching sealant. After light-curing, I inspected the teeth to ensure complete coverage of the pits and fissures and then wiped them with a cotton pledget to remove the air-inhibited layer. I asked the patient to bite down and report any interferences or discomfort. In this case, no occlusal adjustment was required, and the patient was dismissed with properly placed sealants on teeth nos. 28, 29, and 30.