

Solving the Riddle of Deep Restorations Liners

Catapult evaluators set out to find out whether Shofu's Beautifil Flow Plus X is a product that checks all the boxes. [by Ankur Gupta, DDS]



ABOUT CATAPULT

Catapult is an organization that consists of more than 50 clinicians spread throughout Canada and the United States. As a company, manufacturers pay a fee for their product to be evaluated and what we deliver are truthful, independent answers from surveys that we develop with them. We have had many products that have either had to be altered before hitting the market or simply never arrived because of our openly honest evaluations. In this way, Catapult assists the manufacturer to avoid potentially releasing a faulty product, or simply a product that needs refinement. Lastly our clients are omnipresent in the industry, small to large, no favoritism, simply reviewing the latest products in our practices.

After practicing for nearly 20 years, I still get that tingle of anxiety when I remove decay from a supposedly simple cavity and the decay extends deeper than I had anticipated.

The patient was expecting a simple filling. The patient was expecting the tooth to not be sensitive afterward. The patient was not planning to hear me say, "Um, you know that simple filling that was going to cost a little bit? Well, the decay was deeper than I expected, so now you need a root canal, buildup, and crown. And it will cost a lot."

Whenever a restoration is deep and we choose to move forward without endodontic therapy, the possibility exists that the patient will show up to the office later, frustrated about sensitivity. Because of this, clinical dentistry has been introduced over the past 5 decades to a myriad of bases, liners, and varnishes with the principal responsibility to provide a buffer between the nearly exposed viable pulpal tissue and the restoration.

Many of these agents attempt to reduce pulpal inflammation and sensitivity by releasing ions and/or maintaining ideal pH in that incredibly fragile space that differentiates a simple filling from full-fledged endodontic therapy. In extremely brief and simple terms, these liner options include the following.

Calcium hydroxide: This is a highly basic material (pH value of approximately 11) alleged to irritate the surrounding dentin and therefore stimulate reparative dentin. Sadly, the seal does not last, microleakage is common, and calcium hydroxide does not possess similar hardness to either dentin or the overlying restorative material.

Glass ionomer: The 2 benefits of most resin-modified glass ionomer

options are their ability to ionically bond to the underlying tooth structure and their release of fluoride. Disadvantages include high sensitivity to moisture, poor polishability, and an overall hardness that does not match either tooth structure or the potential overlying composite.

Bonded flowable resins: These have been a popular answer to the hardness and polishability question, but when compared with resin-modified glass ionomers, bonded flowable resins do not perform as well in reducing microleakage. Moreover, these resins do not possess the same ability to continually

release pulp-friendly and bacteria-unfriendly ions.

This disparity in liner options has left most dentists without a clear answer until recently. Shofu Dental, a supply manufacturer of abrasives, cameras, and various restorative materials, introduced Giomer Technology to the dental market. Giomer-based restorative materials from the Beautifil line are unique in that they:

- ▶ possess sculptability similar to traditional packable and sculptable composites;
- ▶ are available as a flowable material, similar to traditional flowable composites;
- ▶ can be used with any adhesive light-cured bonding system;
- ▶ have hardness similar to traditional flowable and packable composites;
- ▶ possess similar, and in some cases, superior polishability to competing composites; and
- ▶ constantly release various ions that reduce microleakage, inhibit bacterial growth, and reduce pulpal sensitivity.

It is the last bullet point that makes this restorative option unique. Most



Beautifil Flow Plus X

Beautifil Flow Plus X is a bioactive nano-hybrid flowable restorative. It is formulated with Giomer Technology, including fluoride release and recharge, and features improved handling and polishing to maintain a long-lasting shine. Beautifil Flow Plus X is self-leveling, stackable, and sculptable. It esthetically blends with the natural tooth shade and features a high flexural and compressive strength.

SHOFU USA
800-827-4638 | shofu.com
CIRCLE RS #18

dentists would agree that they feel most comfortable using a liner that behaves the same way as the restorative material that will eventually inhabit the cavosurface margin.

Samples of Shofu's Beautifil Flow Plus X, a flowable, nano-hybrid, Giomer composite that is FDA approved for both anterior and posterior restorations, were sent to several members of the Catapult Education™ product evaluator group. This product was available in 2 viscosities: low flow and no flow. The clinicians were asked to use this restorative material in a variety of clinical cases and asked to fill out a comprehensive survey about their experience using the product. Following is a summary of their experience. The Catapult clinicians used this product for anterior restorations, deep restorations, aligner attachments, pit and fissure restorations, liners under crowns, tunnel preps, Class V restorations near the gingiva, additions to LuxaTemp, and injection molding restorations.

Ninety-two percent of survey respondents reported that the results of these restorations were excellent. The remaining 8% reported that the results were very good.

One of the features of this product is the reduced filler particle size, which allows the product to polish in less time and with a higher level of gloss. Regarding this feature, 100% of survey respondents found the resultant polishability to be "excellent, outstanding, and next level."

Survey respondents were asked to rank one of the following options as their favorite feature of this flowable

product. Although some respondents were most impressed with the Giomer properties and polishability, most respondents were incredibly impressed with the handling. Giomer bioactivity, found in the Beautifil line of restorative materials, is said to do the following:

- ▶ Reduce/eliminate secondary decay
- ▶ Reduce plaque formation
- ▶ Strengthen the tooth structure
- ▶ Reduce/eliminate postoperative sensitivity

Survey respondents were asked to use this product in a variety of restorative techniques, and 0% reported that any patients complained later of sensitivity. Additionally, 100% of the survey respondents had an excellent overall impression of this product, with 100% expressing that they were very likely to recommend this product to a colleague and 100% planning to continue using this product in their own office.

Catapult Education™ has developed stringent criteria that must be met to attain the Catapult Education Vote of Confidence™, requiring that a certain percentage of evaluating clinicians rate a product as either very good or excellent, intend to recommend the product to colleagues, and intend to continue using the product. It is incredibly rare for a product to achieve a 100% rating from every participant. For this reason, it is without hesitation that we would like to bestow the Catapult Vote of Confidence™ to Shofu Dental for their Beautifil Flow Plus X restorative product. ●

[**Figure 1**] Beautifil Flow Plus X comes in the traditional VITA shade options and is dispensed via either multiuse syringes or individual 0.21-g compules. [**Figure 2**] The final restoration is shown. Beautifil Flow Plus X is formulated with Giomer Technology, a bioactive proprietary filler particle that actively releases healthful ions that inhibit plaque formation, minimize hypersensitivity, and release and recharge fluoride to provide continual protection to the tooth. [**Figure 3**] Despite the fact that this is a flowable, low-viscosity product, what makes it unique is its stackability and handling before cure. This gives operators the ability to maintain control throughout the dispensation process. [**Figure 4**] Because of Beautifil Flow Plus X's properties as a bioactive composite with high compressive strength, wear resistance, and polishability, it can be used in a variety of restorative solutions, including Class I-V cases, as a liner, and as a preventive resin restoration. *Figures 1 and 2 courtesy of Howard Glazer, DDS.*

