In recent years, a new type of restorative known as giomer has been receiving attention in clinical papers and on the lecture circuit. Although widely accepted in Japan during the past 15 years, it has only recently caught on in the United States. Among the newest and the most innovative filler material on the market, giomers are also the most misunderstood.

So what are giomers?
Although frequently used to describe the new category of restoratives, the term giomer is less of a category and more an ingredient. Succinctly, a giomer refers to any product that contains surface pre-reacted glass (S-PRG).

These special fillers are nano-sized, multi-functional glass particles that undergo an acid/base reaction, receiving a surface-modified layer to help block moisture prior to incorporation into the resin. This process differs greatly from GI or compomers, which only achieve an acid/base reaction after placement, following a light cure and after they absorb water. Following water sorption, fillers in GIs and compomers swell over time, causing a rapid breakdown in both strength and esthetics.

Through pre-reaction and the addition of a surface-modified layer, giomers offer stable fluoride rechargability similar to GIs but with vast improvements to handling, strength, durability and esthetics.

Sustained remineralization from S-PRG fillers
Shofu’s S-PRG filler particles are not only pre-charged with fluoride during manufacturing, they also recharge when fluoride concentrations in the mouth are high. Simply put, household dental hygiene products, such as fluoridated toothpaste, allow giomers to provide sustained remineralization benefits to adjacent tooth structure during the life of the restoration.

In addition to fluoride, S-PRG filler also releases five other ions: sodium, strontium, aluminum, silicate, and borate—all with known bioactive properties. When exposed to concentrations of lactic acid, these ions contribute to an acid neutralization effect that demonstrates the healing benefits of Giomers.

Clinical success of BEAUTIFIL, a giomer composite material
Independent evaluation of a giomer bonding agent and composite material (FL-Bond and Beautifil), conducted by the University of Florida and later published in JADA, translates this benefit to clinical relevance. At eight years, none of the restorations failed, no sensitivity was reported, anatomical form was well maintained and no secondary caries were present in any of the patients. A 13-year recall of this group is under way.

Application of giomers
Dental applications for giomer products are limited only by the imagination. In addition to Shofu’s existing composite, BEAUTIFIL II, and the injectable restorative BEAUTIFIL Flow Plus, indicated for all classes, Shofu is constantly looking to expand the applications for giomers.

Currently launching at the AACD is BeautiSealant, the first giomer pit and fissure sealant. In addition to the unique giomer healing properties, this material contains a self-etching primer that eliminates harsh phosphoric acid steps completely, saving both time and unnecessary enamel erosion.

Here at the AACD
For more information, or product demonstrations, visit Shofu at booth No. 601. You can also contact Shofu at (800) 837-4638 or by visiting www.shofu.com.