

Unique Blend of Properties in G-ænial™ Universal Flo

Recognizing that dentists love the handling of a flowable composite, even with certain disadvantages in its physical properties, GC America has developed a next-generation solution, G-ænial™ (pronounced *genial*) Universal Flo. “Basically, we combined the best attributes of regular, universal, packable, anterior composites with the best properties of a flowable—that is what G-ænial is all about,” says Mark Heiss, DDS, director of regulatory and academic affairs for GC America. “It is a groundbreaking product that falls under the category of *nanohybrid flowable composite*.”

As Heiss explains, the company brought its strong R&D capabilities and perspective to the development of G-ænial. “As a dental materials company with strength in chemistry, we always look at not only the resin, but the filler. We have the expertise and the R&D ability to manage all aspects of a composite. Although we made some improvements to the resin, for this product we mainly concentrated on the filler,

which helps in terms of handling, esthetics, and strength. We use a unique type of glass, so we are bringing our expertise in glass-ionomer technology too, which is our area of expertise. G-ænial has very small surface-treated glass particles, which gives it its nano aspect.” One of the challenges in manufacturing a composite is to make sure that these particles are dispersed evenly, that it is homogeneous. “Otherwise you might get clumping,” Heiss says. “Fortunately, our manufacturing process is designed to generate and manufacture a homogenous material.”

Regarding the product’s filler content, “it is more highly filled than other flowables on the market,” Heiss adds. “To enhance wear resistance, we lock these fillers in place with the resin, so there is an internal bond between the filler and the resin matrix. With these advances, G-ænial has shown high wear resistance. It also exhibits superior flexural strength—in an area that is under stress, it is not going to crack.”

Not only did GC America advance the composite chemistry, it also improved the delivery system. “We recognize that dentists are extremely interested in this aspect—anything that can minimize waste, make it easy to use in the clinic, and facilitate clean up. Some dentists experience finger fatigue if it takes a lot of pressure to push the material out of the syringe tip opening. However, with G-ænial that is not an issue. We designed the tip and syringe to minimize or prevent fatigue. We even thought about the barrel—it is constructed with a rectangular flange, so the syringe doesn’t roll when it is placed on the counter. We also incorporated a fine tip and a long nozzle—for better reach, improved accessibility, easier flow control, and less waste.”

Heiss points out some additional physical properties that will appeal to G-ænial users. “Clinicians want to know if the product is glossy or not, and does it maintain its gloss. Almost any product can start out shiny, and the patient is happy at first—but what is just as important is the ability to maintain that gloss. G-ænial is very easy to polish, and once you polish it to a gloss, it maintains its luster.”

Kelley Reinfelds, product manager, explains that the company has developed a unique set of attributes in G-ænial that are valuable to clinicians and their patients. “Most times, when your product is a *flowable*, you compare it against other flowables,” she says. “And when it is a *composite*, you compare it against conventional composites. With G-ænial, we are able to do a lot of physical property testing against both types of competitors, which is highly unusual. So even though we are in the category of *flowables*, we are also testing ourselves against composites—and faring better in physical property testing against both. So it is a one-of-a-kind product. We do not want to pigeon hole it as just another flowable.” Heiss agrees, “Yes, it is flowable, has the best attributes of a packable, like



a conventional nanohybrid composite. So in many ways, it is the best of all worlds.”

“This product is such an unusual blend of two categories,” Reinfelds continues. “It can be difficult to categorize—it looks and feels like a flowable composite but acts like another composite category. However, we have to place it somewhere in the catalog. Because it comes in a syringe and behaves like a flowable, it is going to be in that section; however, it does have so many unique characteristics. Today, the market is so crowded, there seems to be a new composite every time you turn around. So we really concentrated on providing a blend of physical properties and handling that

will best benefit the dentist. I believe we have achieved that with G-ænial—and we will continue to come out with better and better composites in the future.” This ground-breaking “next generation” composite will be featured in a number of scientific presentations during the upcoming International Association for Dental Research meeting, March 2011.

With 90 years of history, GC’s R&D prowess is highly regarded. “We have more scientists and researchers dedicated to dental materials than most if not all other large dental companies,” Reinfelds says. “There are some bigger companies, but they do not have the R&D arm that GC

does when it comes to this area. What we have accomplished as a dental company shows our commitment to quality and to our customers. Within the realm of composites, GC America will keep refining materials to offer the best of both worlds, as Mark said. We truly want to provide a quality product with the most incredible esthetics, great strength, low shrinkage, and everything else a clinician could ask for.”

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