

DENTAL TRIBUNE



Dr Desigar Moodley works at the research department at composite veneers company edelweiss. (Photograph: Robert Strehler, DTI)

Interview: "We thrive on presenting state-of-the-art aesthetic solutions"

By Dental Tribune International
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Dr Desigar Moodley is a senior lecturer and researcher in the field of dental pulp stem cells and biomaterials at the University of the Western Cape in Cape Town in South Africa. After completing his PhD on the cytotoxicity of dentine bonding agents, Moodley has successfully grown stem cells from dental pulp tissue and tested the response of these cells to various newer bioactive materials. In addition to his work as a university lecturer, Moodley is

involved in the research department at composite veneers company edelweiss. Taking some time out of his busy schedule, he sat down with Dental Tribune International to talk about some of the company's most recent developments and what has been released at IDS 2019.

Dr Moodley, what are the core values of edelweiss?

Edelweiss is a company whose motto is "Beautiful innovation you can trust", so all products that come out of edelweiss are firstly, of course, innovative and unique to the edelweiss brand. It is also a think-tank driven by inspiration and technical know-how that conceptualises and produces innovative systematic solutions. We thrive on presenting state-of-the-art aesthetic solutions, together with a conservative minimally invasive approach, as we fundamentally believe that preserving tooth structure is the most important and optimal goal, combining function and aesthetics in one appointment.

At IDS, you have launched a new comprehensive system for aesthetic dentistry. What products does that include?

Among the products included are the edelweiss DIRECT VENEERS. These are minimally invasive and highly aesthetic veneers that mimic the enamel layer of the tooth. Never before has it been feasible to directly create the natural shape and youthful luminance of a tooth so easily and perfectly in a single appointment. Its versatile application, together with its time- and cost-saving procedure, makes DIRECT VENEER a sound investment in the future with the best interests of the patient in mind. These veneers are indicated for anterior and posterior restorations, tooth discoloration, anatomical deformities, diastema closure, eroded and attrited crown facings, increasing the vertical dimension (CMD), and semi-direct and indirect restorations.

Also part of the system is OCCLUSIONVD, an ultrathin, highly filled nano-hybrid composite occlusal enamel shell. It is intended for restoring posterior teeth and increasing vertical dimension.

Included too is POST & CORE. This bio-aesthetic post and core system highlights the edelweiss philosophy. This is a laser-sintered nano-hybrid composite monobloc that possesses antibacterial properties owing to the incorporation of zinc oxide nanoparticles. The aesthetic property is unique in that the product consists of a translucent post attached to an opaque built-in core. This reduces post and core placement to a single step, thus saving time. The further advantage

is that it is a monobloc, so there is no possibility of debonding of the core from the post. Light transmission throughout the full length of the post is enhanced by the post's translucency, ensuring complete polymerisation of the cement.

Another product is PEDIATRIC CROWNS. This is a major breakthrough in paediatric dentistry in that, as a first in the dental market, edelweiss has produced a prefabricated paediatric crown from a nano-hybrid composite that is perfectly matched to the aesthetics of the natural primary tooth, yet maintains excellent flexural and compressive strength. Several options are currently available for full-coverage restorations for the primary dentition, with each approach having some disadvantages of its own, for example stainless-steel crowns with or without ceramic facing, and zirconia crowns, but none of these seem to meet the demands of the child patient. Stainless-steel crowns are unaesthetic and may contain nickel, a common allergen in dentistry. However, zirconia crowns are more aesthetic, but require a more aggressive reduction of the primary tooth. Thus, the edelweiss PEDIATRIC CROWN was borne out of this necessity for an ideal paediatric crown. Edelweiss dentistry made use of its existing technology that has already been proven for several years in the adult patient to develop the PEDIATRIC CROWN. It is now feasible for the dentist to place these paediatric crowns with minimal destruction to the tooth structure. This is important considering that the primary teeth have large pulp chambers, which are at risk of pulpal damage from extensive preparations, as seen with other systems on the dental market.

And finally, COMPOSITE, a light-cured, radiopaque, highly filled nano-hybrid composite filling material for restorations that meet the highest standards. The system consists of enamel and dentine shades (one enamel shade and five VITA dentine shades, A0–A3.5). For additional high aesthetic characterisation, the edelweiss system provides a nano-hybrid flowable composite in three shade effects: blue, opaque white and effect ice. With the technology used in edelweiss composites, the particles are evenly distributed without aggregation and agglomeration. Thus, in the edelweiss composite, the nanoparticles reach their full potential for improvements of shrinkage, modulus of elasticity and mechanical strength. Low polymerisation shrinkage is possible owing to this nanotechnology. The high filler content (83 per cent) provides good abrasion resistance, as well as good physical and mechanical properties. A major advantage of this composite is the antibacterial surface due to zinc and fluoride particles within the filler particles. The nanotechnology provides for easy polishing to produce a highly aesthetic surface with natural fluorescence and opalescence.

What are the key benefits of the edelweiss system?

The edelweiss system is unique in that the traditional nano-hybrid composite, as seen in many other systems, is modified through a special laser sintering and vitrification process whereby the composite becomes a single inorganic phase, thus improving both its physical and mechanical properties. Its strength has been improved to be very similar to that of lithium disilicate. Its glass-like surface has similar optical properties to those of ceramics. This, of course, benefits the clinician because we now have properties similar to those of ceramics without being too destructive to the tooth during preparation. The patented vitrification process is unique to edelweiss products and ensures optimal aesthetics. The veneers are glass-like shells meant to mimic the enamel layer, giving the restored tooth a lifelike, natural appearance. Another advantage is the time required to place these veneers. Since they need minimal tooth preparation, the clinician can prepare and place these veneers in a single visit, saving time for both the clinician and the patient.

For whom is the system intended?

Any dental practitioner who wishes to be at the forefront of minimally invasive aesthetic dentistry will benefit from the edelweiss system. Edelweiss is a philosophy; its underlying concept is preservation of tooth structure with products that offer optimal strength and aesthetic advantage.

Bio-aesthetics is a recurring concept in your corporate philosophy.

Can you elaborate on this?

Harmonious long-term function depends on the cohesive relationship between the anterior and posterior dentition, the temporomandibular joints and the neuro-musculature system of the patient. Edelweiss is unique in that we have total integration between the anterior edelweiss veneer system and the posterior OCCLUSIONVD system together with bio-aesthetics. We look at the entire dentofacial mechanism as a whole and not just the restoration of teeth as single units. Our philosophy is driven by bi-functionality, bio-aesthetics and bioactivity. We want our restorations to achieve optimal integration in both function and aesthetics, and both our DIRECT VENEER and OCCLUSIONVD systems complement each other to provide the patient with a harmonious occlusion with optimal aesthetics.

Can you tell us more about edelweiss's innovative and patented manufacturing system in composite technology?

This is the innovation we always come back to and is unique to edelweiss. Through laser sintering under controlled pressure and temperature, the atoms in the two phases of the composite material diffuse across the boundaries of the particles, fusing the particles together and creating one solid piece. This produces

a homogenous, inorganic material with optimal physical properties. We then go one step further by producing a vitrified glass-like layer on the surface that enhances the optical properties. The combination of this unique laser sintering and vitrification process ensures our materials have maximum aesthetic properties without compromising the strength of the materials. We now have optimal integration between function and aesthetics—bio-aesthetics. This is what edelweiss stands for: function and aesthetics in one appointment.

In your opinion, how have veneer systems changed the dental market so far, and what are edelweiss's future plans?

Dentistry has evolved from major destruction of tooth structure just to retain a restoration to minimally invasive procedures, in which we seek to preserve as much tooth structure as possible. And this is our philosophy, in that we produce a veneer system that is highly aesthetic with minimal invasion of tooth structure. We can see this shift now in many dental practices all over the world, where dentists realise that there is no need to destroy so much tooth structure just to retain a restoration; there are alternatives like the edelweiss veneer system with which dentists can achieve the same results with minimal tooth loss.

With regard to future plans, we will continue to produce aesthetic systems that are in line with our philosophy of state-of-the-art aesthetic products that are bioactive and preserve the tooth structure. Our R & D team continuously probe new ideas to produce dental products with "Beautiful innovation you can trust".

For more information on the edelweiss products please visit the company's booth (#D068–E069) in Hall 11.3.

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