

The perfect link between man and technology

In 2019, the novel implant system by the German implant manufacturing company TIZIO Hybrid Implants was unveiled for the first time. The implant is unique in that it combines the advantages of titanium and ceramics in one system. In this interview, Jennifer Wilken, CEO of the company based in Rostock at the shores of the Baltic Sea, talks about what sets their product apart and gives an outlook on what's to come for her company in the near future.

At IDS 2019, TIZIO Hybrid Implants presented itself to the world for the first time with a novel implant system. Hybrid implants like that have not been seen before. What was key reason behind developing a hybrid implant?

The idea of TIZIO Hybrid Implants is rooted directly in experience and draws from practicing dental technicians and dentists. We put great emphasis on a steady exchange



TIZIO HYBRID IMPLANTS

The Root of the Future

with users. Development is characterised by interdisciplinary research with engineers, scientists and close involvement of university clinics on the one hand and by the professional exchange of information between medical professions on the other. In

short: every developmental step is made based on direct feedback from practice. The vision of Prof. Günter Heimke at the DGOI congress in Hamburg in 1992 ("the goal is to have an implant body made from titanium on the inside, whereas the neck and the overall shape on the outside are made of ceramics") has finally become reality after more than 25 years.

We have been dedicating ourselves to the research and development of hybrid materials since 2005. We believe that one must not compromise the preservation of basic bodily functions. This is in keeping with our innovative and worldwide unique hybrid implant systems, which



Fig. 1: The TIZIO implant system will be available in two versions: as classic two-piece system (TIZIO F3), which enables implantation at bone level and covered healing, and as a system with an extended neck made of ceramics (TIZIO H6), which allows implantations at tissue level. In general, TIZIO offers a wide range of products for a variety of indications.

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we have developed for dental and orthopaedic applications. Produced in Rostock by specialists with decades of experience in the industry, the individual systems will be launched in international markets. At the same time, we are constantly striving to find new solutions for dentists and patients in order to guarantee them the highest possible treatment safety and quality at all times. To this end, we collaborate with experts from various disciplines to research and develop innovative materials and processes, always driven by our guiding principle: "TIZIO—the perfect link between man and technology."

In order to combine the advantages of titanium and ceramics, you make use of the so-called glass soldering technique. What are the advantages of this technique and how does it work?

With the aid of glass soldering, it is now possible for the first time to bond titanium and ceramics together without creating gaps or bubbles in the process. The resulting hybrid implant behaves just like a monolithic material. Joining gaps associated with conventional bonding are now a thing of the past; the risk of peri-implantitis is reduced to almost zero. Long-standing limitations in the

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fields of bonding and surface technology can now be overcome with glass soldering. The technique is well-established and has been scientifically proven in dentistry for more than a decade now. With the DCMhotbond product range (DCM GmbH), we are able to offer dental technicians innovative joining methods of pure, similar and also foreign materials.

Where do you see the current and future major challenges in dental implantology?

For more and more patients, biocompatibility becomes an increasingly decisive factor when choosing an implant system. As of yet, however, all-ceramic systems do not offer sufficient treatment safety and are limited to only a certain number of indications. This is why many practitioners opt for titanium implant systems instead of ceramic solutions. However, the titanium core of the hybrid implants offers practitioners great treatment safety and is thus an enormous gain for the treatment quality, since the patient's wish can ultimately be fulfilled. Innovative implant surfaces are also becoming increasingly more important. The overarching focus here is on faster osseointegration and the reduction of abrasion particles that may cause inflamed peri-implant tissue. TIZIO implants are additionally coated with a structured glass matrix from the outside by means of a thermal process. The diffused glass matrix creates a firm, material-locking bond with defined roughness depths that favour osteoconductivity. At the same time, chipping is reduced to a minimum as opposed to native ceramics and the accumulation of plaque is made more difficult. Recent studies indicate that dental biofilms adhere to the glass matrix less and, in addition, can be easily removed from it.

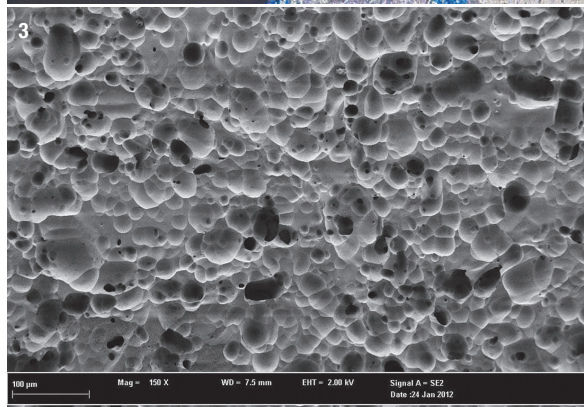
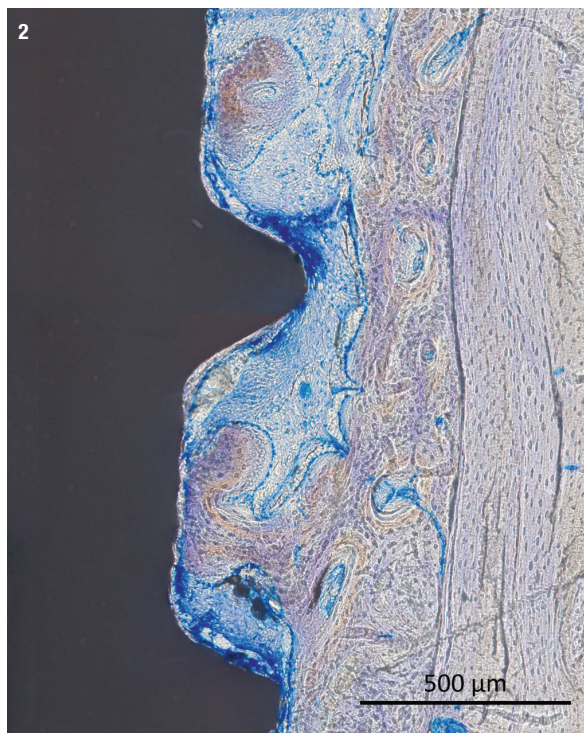


Fig. 2: Microscopic image of the TIZIO hybrid implant. (Source: Universitätsmedizin Rostock, Clinic of Dentistry, Oral and Maxillofacial Medicine).

Fig. 3: Roughness depths in the glass matrix are the prerequisite for micro-mechanical bonding (Source: DOT GmbH).

Your implant system has now been successfully introduced and will be marketed in the near future. What are your goals for 2020 and 2021? Where do you see TIZIO Hybrid Implants at next year's IDS in Cologne?

What's particularly special is that the hybrid technology can be transferred to already existing implant systems. Almost every known interface on the market can be used with the TIZIO implant. This is particularly important for dentists who do not need to make adaptations in handling. They can continue to use conventional tools as well as the existing respective prosthetic solutions. At

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