VITA upgrades its shade-measuring unit

A new generation of opto-electronic shade-measuring units for dentists and dental technicians will be presented by VITA in 2009. The Germany-based manufacturer has announced the showcasing of its Easyshade Compact unit at IDS Cologne in Germany in March and in other markets later this year. The previous model, VITA Easyshade, was introduced in 2005.

According to the company, the new VITA Easyshade Compact will feature advanced spectrophotometric technology for more accurate and faster results in the determination of natural tooth shades and the shade of dental restorations. Results can be displayed in the shade codes of the VITA-PAN classical A1-D4 or the VITA System 5D-Master. Other key improvements include a cordless design that allows users to move freely, as well as a durable state-of-the-art LED light. The VITA Easyshade Compact will be compatible to LabRX from Dicom, USA.

The VITA Easyshade Compact will offer storage capacity for 25 measurement cycles, which can be saved and stored before the unit is switched off. The lightweight and hand-friendly design of the previous model has been retained.

www.vita-zahnfabrik.com

One-step impression with Identium

German Kettenbach will launch the new Identium impression material containing Vinylsiloxanether, a new formula that has the mechanical and chemical advantages of polyether and A-Silicone, at IDS 2009.

According to the company, Identium was developed especially for the one-step impression technique. Owing to its improved chemistry and extraordinary hydrophilicity, Identium offers excellent flow properties with an immediate contact angle of less than 10 degrees and is easy to remove from the mouth or mould. It is also tasteless and odourless, officials from Kettenbach said.

Identium comes in heavy-, medium-, and light-bodied consistency for Plug & Press automatic dispenser systems (ratio 5:1) and in 50 ml cartridges. It will be available during IDS and through dealers in all major Asian markets.

Kettenbach is located in Eschenburg in Germany. Founded in 1944 by August Kettenbach, the company was established for the development of medical and dental products. Today, it is a leading international producer of impression materials for dentistry.

www.kettenbach.com
“Dentistry in the US is more focused on pure cosmetics”

An interview with Dr Michael Miller, REALITY Publishing Co.

Nothing could be farther from the truth. When a manufacturer submits a product, it has absolutely no control over the evaluation. Some manufacturers do not submit products — they are wary about what we are going to find. In addition, since there is no fee involved for manufacturers when they submit products, we have no reason to try to please them. While we don’t believe in testing products unprofessionally, we have warned our readers numerous times about products that don’t live up to their marketing propaganda. Any clinician who believes we are merely a marketing arm for manufacturers has never asked a manufacturer if it’s true.

How exactly does the product rating process work?

Products are listed on a password-protected section of our site for ET Members’ eyes-only. We then ask the ET members to select products that they are interested in evaluating. At least ten members must volunteer to evaluate a consumable-type product such as an adhesive for it to qualify for a star rating. The actual numerical score and star rating for each product is largely the average of the evaluators’ scores modified by any exemplary or poor results in the RRL although clinical results are always considered at a higher level than those from the lab.

Which facilities are available in the REALITY research Lab?

We have many pieces of equipment you would find in other research labs around the world, including an Instron for testing bond strength of adhesives and other materials, a digital hardness tester for measuring depth of cure, a spectrophotometer to measure the color of materials, a custom-made black light box to check the fluorescence of materials, and much more. However, the real difference between our lab and others is the way we perform tests. Our methods have all been designed to simulate the clinical condition as closely as possible, which is why our results can be radically different compared to those claimed by manufacturers. For example, our depth of cure tests are done in real, human teeth. These tests show that the claims of composite and curing light materials are greatly exaggerated. If any clinician follows a manufacturer’s advice in this area, there is a great probability that the restoration will be under-cured.

Aside from checking the REALITY website, what clues should clinicians look for when choosing the right product?

Dr. Michael Miller is retrieving a product from REALITY’s archive in Houston, TX.

From your experience, what are the current trends in cosmetic dentistry in US? What expectations do you have for the future?

I have lectured in Japan and Thailand, but I am not an expert in how dentistry differs between the two regions. My gut feeling, however, is that there is more dentistry in the US focused on pure cosmetics compared to Asia.

How would you grade the quality of work done by Asian professionals?

I have seen some absolutely beautiful dentistry come from the offices of Asian clinicians.

Are you familiar with the market in Asia and if so, how does it compare to the US market?

I have lectured in Japan and Thailand, but I am not an expert in how dentistry differs between the two regions. My gut feeling, however, is that there is more dentistry in the US focused on pure cosmetics compared to Asia.

How would you grade the quality of work done by Asian professionals?

I have seen some absolutely beautiful dentistry come from the offices of Asian clinicians. Definitely on par with the US and Europe.

Do you have any suggestions for your young readers who have an interest in incorporating cosmetic dentistry into their practice?

First, it takes a lot of study. You cannot attend a weekend seminar and learn the nuances of really fine cosmetic dentistry. Second, if possible, attend numerous and varied seminars, and watch as many masters as possible. Then start with easy cases and progress to more demanding ones.

Thank you very much for this interview!
The CAD/CAM evolution

Computers in practice and laboratory will determine action

Prof. Albert Mehl
Switzerland

Impression-free practice, virtual construction models and articulation on Windows desktops, biogeneric occlusal surface design with intelligent software, as well as rapid prototyping, are just some of topics increasingly mentioned in lectures and publications dealing with CAD/CAM. Already, ‘conventional’ CAD/CAM technology is in use in dental offices and laboratories, and now the next step in CAD/CAM evolution is anticipated. Only a few years ago, discussion focused on exactness of fit, the reduced costs for dentists and patients, and user-friendliness. The quality of CAD/CAM restorations was viewed with cynicism, and only a few pioneers gave scientific attention to this technology. At present, the situation is quite different. The hesitant and doubtful attitude towards computer-manufactured dental prostheses has been discarded, and an accepted standard procedure has been established. Many companies now invest immense resources in the further development of this technology.

What impelled this rapid change? On the one hand, the value of zirconium dioxide ceramic in particular, which can only be processed with computer-assisted techniques, became evident. This material made all-ceramic fixed partial dentures possible for the first time. Other ceramics, too, have established themselves in practice. Many companies now invest immense resources in the further development of this technology.

In the 1990s, it was possible to adapt 5-D recording/imaging systems to the needs of dentistry and simplify their operation. Continued development of CAD software enabled a multitude of construction options (Fig. 1) and an improvement in the quality of the grinding/milling units. Economic efficiency, combined with high quality restorations, is the current hallmark of CAD/CAM technology. It is not only dentists and dental engineers who benefit from the performance potential of CAD/CAM technology. It is not only dentists and dental engineers who benefit from the performance potential of CAD/CAM technology. It is not only dentists and dental engineers who benefit from the performance potential of CAD/CAM technology. The CAD/CAM evolution is tremendous, this is certain to change in the next few years, which in turn will influence the training of dental students and indirectly the treatment possibilities in practices as well, in the interests of our patients.

The needs of CAD/CAM technology have propelled basic research to new heights and thus advanced other areas of dentistry. Through cooperative ventures, universities and industry can form a useful symbiosis to promote and shape this exciting development. Until now, CAD/CAM or computer-assisted dentistry has not been a central subject at the universities. But because the technology is relatively new and the performance potential of CAD/CAM technology is tremendous, this is certain to change in the next few years, which in turn will influence the training of dental students and indirectly the treatment possibilities in practices as well, in the interests of our patients.

Computer-assisted procedures over the conventional wax-up technique also lies in the functional and morphological occlusal surface design. Complex algorithms can store an immense amount of basic knowledge about tooth structures and individual genetic contexts. Virtual articulators can simulate any programmable movement, so that considerably more natural laws and limits, as well as individual parameters, can be integrated into the restoration surface than has been possible up to now.

Another important current trend is the chairside manufacture of inlays, onlays, partial crowns and single crowns. The dentist is this CAD/CAM procedure’s target group. The one-appointment treatment has a time-saving benefit for the patient and eliminates provisional restorations, which additionally minimizes the risk of cusp fracture, enamel margin chipping, and weakening of the dentine bond.

The biogenic formation of occlusal surfaces enables the reconstruction of missing occlusal surfaces for crowns, onlays and partial crowns according to nature’s designs (Figs. 2, 3).

CAD/CAM and all-ceramics are often mentioned in conjunction with each other, which is understandable given the discussion above, but this does not represent all the options. The enormous potential in milling procedures and, just recently, in the laser sintering of metals is often completely forgotten. The manufacture of metal restorations (eg, non-precious metals, titanium, or gold alloys) will thus eventually become a domain of CAD/CAM technology.

Cusp tips, the cusp slopes, and the course of fissures. The natural rules governing the biogeneric occlusal surface can be found through the analysis of many thousands of occlusal surfaces of natural teeth. (DTI/Photo A. Mehl) — Fig. 3: Using the natural laws thus found, an occlusal surface is calculated that replaces the defect as naturally as possible, by adapting it to the remaining tooth structure. (DTI/Photo A. Mehl)

What does the future of CAD/CAM technology hold? Intra-oral 5-D measuring will at least in part make the impression-free practice possible (Fig. 4). The speed, operation, and precision of the images are being continually improved and the measurement range expanded. Once a 5-D data set of tooth surfaces has been stored, a completely novel form of dental diagnostics can be conducted, by comparing data that were recorded at different time points. Thus, quantitative, 3-D progress control of orthodontic treatment, the analysis of recession and abrasion, periodontal changes, or interventions is possible.

A distinct advantage of computer-assisted procedures over the conventional wax-up technique also lies in the functional and morphological occlusal surface design. Complex algorithms can store an immense amount of basic knowledge about tooth structures and individual genetic contexts. Virtual articulators can simulate any programmable movement, so that considerably more natural laws and limits, as well as individual parameters, can be integrated into the restoration surface than has been possible up to now.

The needs of CAD/CAM technology have propelled basic research to new heights and thus advanced other areas of dentistry. Through cooperative ventures, universities and industry can form a useful symbiosis to promote and shape this exciting development. Until now, CAD/CAM or computer-assisted dentistry has not been a central subject at the universities. But because the technology is relatively new and the performance potential of CAD/CAM technology

Fig. 1: Virtual reconstruction. The scanned data of the antagonist’s functional movement, adjacent teeth and the preparation can be considered in toto, in order to create a fitting occlusal surface that follows all the rules of dentistry. (DTI/Photo A. Mehl)

Fig. 2: The remaining tooth substance determines the morphology of the occlusal surface in the defect region, largely through, for instance, the position of the cusp tips, the cusp slopes, and the course of fissures. The natural rules governing the biogeneric occlusal surface can be found through the analysis of many thousands of occlusal surfaces of natural teeth. (DTI/Photo A. Mehl)

Fig. 3: Using the natural laws thus found, an occlusal surface is calculated that replaces the defect as naturally as possible, by adapting it to the remaining tooth structure. (DTI/Photo A. Mehl)

Fig. 4: In the future, intra-oral camera scanners will enable optical impressions of the entire jaw, thus preparing the way for the impression-free practice. (DTI/Photo K. Wiedhahn)

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