Dear Readers,

It is show time again: the International Dental Show IDS in Cologne opens the doors. The continuous growth of this biggest dental exhibition of the world seems to be unlimited.

Once again, the number of exhibitors has increased, new record numbers of visitors are expected. Also regarding the area of exhibition, the IDS has grown again, with the addition of a new hall. Here you will find us, as 3M ESPE has moved and grown as well.

This time, at our new exhibition booth you will find the 3M ESPE product world for dentists and dental technicians under the same roof. Here we will present well known products and innovations for you, being your partner of trust.

In the selling area, you will find competent partners for your questions and orders.

At the new “walk of innovation” you will find more than products: Entertainment and Information, here you can meet developers and experts.

Innovations and subjects beyond products are also the focus of this special IDS edition of the Expertise Magazine.

Enjoy reading!

Your

Gerhard Kultermann, Editor
3M ESPE, Seefeld, Germany

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The trend toward aesthetic restorations with all ceramics continues to evolve, with zirconia being the material of choice. Thus, demands from laboratories for increased access to zirconia substructures has followed.

To date the outsourcing model established by 3M ESPE for its Lava™ Crowns and Bridges is well known for facilitating access to modern CAD/CAM technology without investment for hardware or software. With this model, dental labs simply send their models and dies to a milling center offering Lava Crowns & Bridges and subsequently receive back precisely fitting substructures. They’ll then veneer the substructures with ceramics to complete the restoration to the dentist’s prescription specifications. While this model offers access and flexibility to labs, with the introduction of the new Lava Scan ST it is possible for an outsourcing lab to gain design control and speed within the production process.

**Design Control and what it means to you.**

As a dentist you choose your dental laboratories carefully. Over the course of your working relationship with your labs, you continually develop the communication process, and fine tune the specifications of your work. In time, your lab knows exactly how you like your cases to fit, function, and look. This increases your comfort level with your lab, and decreases the likelihood that you receive a case that doesn’t match your desires. With the Lava Scan ST your lab now has the ability to control the design of the crown or bridge sub-structure as well. Pontic and connector placement, coping height, cement gap placement, and other subtle design features can be completed by the lab technician who knows your specifications best. This reduces the risk of your specifications not being met. Furthermore, the case data is now transmitted to a milling center via the internet versus the mail. This results in a shortened lead time for a Lava substructure to be returned to your lab. Time which can be used for more attention to the veneering process, or possibly a quicker delivery to you.

**Faster, Easier, Better, without sacrifice.**

The Lava Scan ST by 3M ESPE has been designed to perform at the highest level. Scan time, ergonomics and functionality, indications, and footprint all were to be improved without effecting the accuracy and precision of fit of Lava Crowns & Bridges. 3M ESPE has successfully accomplished this.

- Same accuracy as the previous Lava Scanner
- Scan time has been cut in half compared to previous Lava Scanner
- The scan window has been increased to accommodate up to 47 mm spans
- Indication improvements in 5 & 6 unit splinted crowns, and 4 unit bridge frame selection optimized
- Vertical stance requires less bench space
- Automatic detection of undercuts to help identify areas of fit concern
Because of this, both the Lava™ milling center and the satellite scanner labs will use the exact same technology to acquire data for Lava substructure design and fabrication. This ensures consistency throughout the process regardless of which model your lab chooses to utilize.

**A Robust Design**

One of the concerns with anything mechanical is its ability to last. You can only experience the aforementioned attributes of the Lava Scan ST Scanner if it is operational, so at 3M ESPE we went a step further to make sure that we launched a quality product. We tested our new scanner in the field and in a simulation. In the simulation, we operated a Lava Scan ST for the equivalent of 15 years at 250 days per year and 34 scans per day, or 127,500 scans. The scanner performed excellently in this simulation. It may seem that a robust design is an attribute more suited for the dental lab, but if you consider that if a scanner breaks down and requires a case to be delayed, it is just as important for you the dentist. Laboratories dread calling their loyal customers with news that their case will be delayed. In turn, a delayed case means that the dentist may have to call their patient to reschedule their appointment. Delays like this are expensive to both parties, and can leave non-productive gaps in a dentist’s schedule. A robust design helps reduce this risk. Furthermore, with the flexible access model offered with Lava, a lab still has the option to mail the stone model to a milling center and have a substructure made. This is another way risks can be mitigated.

**Security**

Where does the data go? Case data that is sent via the internet from a lab to a milling center is at risk of being accessed by someone unintended. This data could be considered sensitive information, and in some countries protected by law, so it needs to be safe-guarded.

That is why the Lava Scan ST hardware was only part of the development. The process on how you transmit data within this workflow was just as important. Therefore, 3M ESPE developed the Lava™ Connect software and a secured network. With this network and through the use of encryption technology, only authorized people can access your case data.

**Conclusion: Another way to win with Lava without doing a thing.**

The Lava Scan ST by 3M ESPE brings you many advantages even though you will never use it.

1. Design control is now in the hands of the technician who knows you the best, your technician.
2. The Faster, Easier, Better Lava Scan ST Scanner by 3M ESPE enables your technician to provide you with more indications with the same, highly accurate, scanner used in milling centers, while decreasing the lead time.
3. A robust design helps ensure that you and your lab don’t have down time.
4. A Secure network protects your data, and possibly you, from unintended, unauthorized access of your cases.

We are excited about the launch of the Lava Scan ST. It offers dentists and laboratories many advantages over the traditional outsourcing model and less financial investment risk than owning a complete CAD/CAM system. But the biggest advantage of the Lava Scan ST model – at the end of process you are getting a Lava crown or bridge!!! There is still no substitute.
Advancing VPS Impression Materials to a new level

Laurence Bergmeier-Lega, 3M ESPE, Germany

Winning balance of clinically relevant properties

The newly introduced product family of Express 2 VPS Impression Materials offers a rich selection of tray and light-body materials for the 1-step and the 2-step technique. With a winning combination of well balanced clinically relevant properties, based on an advanced VPS formula, they meet the needs of the daily practice in an unprecedented way.

Dentists who want to benefit from the clinical advantages of an outstanding balance of clinically relevant properties can switch to Express2 products and stay with their preferred technique and material viscosities. The comprehensive portfolio of Express 2 VPS Impression Materials matches dentists’ preferences for special viscosities, setting times and impressioning techniques.

Based on an advanced VPS formula, Express 2 VPS Impression Materials offer all the clinically relevant features for accurate detail reproduction and great fit of the final restoration. They demonstrate well balanced first-class performance with superb results for hydrophilicity, tensile strength, elongation potential, toughness and recovery. With their outstanding mix of clinical advantages and convenience Express 2 VPS Impression Materials reduce costly and time-consuming retakes, remakes and adjustments.

4 Tray materials, tailor-made to dentists’ needs

The 4 tray materials of Express 2 provide an excellent basis for reliable precision impressions, as they support the wash materials’ performance. Express™ 2 Penta™ Putty VPS Impression Material offers real putty consistency with high insertion pressure, good carving properties and high rigidity in the set stage. It is suited for the 2-step and 1-step putty-wash technique.

The hydrophilic heavy body material Express 2 Penta H VPS Impression Material and its fast-setting Quick version are especially recommended for the 1-step technique. They show good flow to moist tooth surfaces and are easy to remove from the mouth.

Express 2 Penta H Universal Quick VPS Impression Material is an ideal choice for dentists who use the 1-step or 2-step technique, depending on the clinical case. The versatile fast-setting tray material is equally suited for both technique, additionally it offers great carving properties, as needed for the 2-step technique.

In this compilation of clinically important properties Express™ 2 Light Body Standard (green) shows a very convincing balance of properties. It is the only material that performs very well in each of the five tested properties. Values for each property are given in a scale ranging from 1 = poor to 10 = excellent.

* Waterdrop contact angle on set material after 2 seconds.
Wash materials – free choice of 5 products in 3 viscosities

The Express™ 2 product portfolio offers 5 wash materials in the viscosities ultra-light, very light and light.

Express 2 Ultra-Light Body Quick VPS Impression Material generates very thin layers and is especially suited for the 2-step technique with Express™ 2 Penta™ Putty. Due to its ultra-light low viscosity with good structural properties it flows very well when pressure is applied.

Express 2 Light Body Flow VPS Impression Material and its Quick version show the great flow properties of a very light viscosity and are suited for both impression techniques.

Especially recommended for the 1-step technique are Express 2 Light Body Standard VPS Impression Material and its fast-setting Quick variant. They have a light viscosity and stay very well on the tooth.

Unique Advantages of the automatically mixed Express™ 2 Penta™ Putty

In the 2-step putty-wash technique Express 2 Penta Putty ensures great results in combination with the wash material Express 2 Ultra-Light Body Quick. For users of the 1-step putty-wash technique the automatically mixed putty material offers a unique benefit: It combines long working time with fast intra-oral setting. The putty has already mouth temperature when dispensed from the Pentamix™ 2 Mixing Unit. This has the effect of accelerating the temperature-dependent polymerization of any VPS wash material. This favourable innovative combination of long working time and short setting time, is highly estimated by putty users.

Line extension by handmix putties

The successful Express 2 product line of VPS impression materials will soon be extended: In 2007, 3M ESPE will introduce two handmix putties with specific benefits for easy manual mixing and excellent carving properties.

Very positive practice feedback

“The next generation VPS formula distinguishes Express 2 VPS Impression Materials very favourably from traditional VPS products” says Elke Kopp, 3M ESPE Global Category Manager. “The large selection of Express 2 VPS Impression Materials ensure, that dentists benefit from clinically relevant advantages in an unprecedented balance, while staying with their preferred techniques, viscosities and setting times. As practice feedback shows, this convincing mix of familiar attributes and extremely well balanced clinical reliability is the true success formula of Express 2 VPS Impression Materials.”
RelyX™ Unicem in the Clicker™ Dispenser

Following the customers’ needs

Laslo Faith, 3M ESPE, Germany

After more than 20 million sold capsules of RelyX Unicem Self-Adhesive Universal Resin Cement – this cement is now also available in the Clicker™ Dispenser for hand mixing.

The self-adhesive cement RelyX Unicem with no etching, no priming and no bonding improved significantly the permanent cementation of indirect restorations.

The main qualities of RelyX Unicem cement are: easy-to-use, for virtually all indications, very strong adhesion and low risk of post-operative sensitivities. The RelyX Unicem cement in the Clicker is based on RelyX Unicem cement in the Aplicap™ delivery, that is clinically proven since years and tested in many independent studies.

RelyX Unicem cement in the patented 3M Clicker Dispenser enables fast, hygienic and easy use, combined with precise dosage, minimized waste, mixing without compromise and fast clean-up.

No additional mixing equipment is needed. The Clicker dispenser is immediately ready for use and offers a high level of chemical and clinical performance already associated with the RelyX Unicem Aplicap system. Variable quantities can be dispensed for all sizes of restorations. Clicker dosage enables a consistent 50:50 mixing ratio.

The Clicker Dispenser has proven its reliability with a number of 3M ESPE paste/paste products. In 2005 it was awarded with the Medical Design Excellence Award, especially for safety and user benefit.

The paste/paste formulation of RelyX Unicem offers time-saving, easy and safe mixing and quick and simple clean-up. Cementation becomes cost-effective as material is adaptable to the size of restoration with minimized waste. Additionally an integrated consumption level indicator allows good material management.
RelyX™ Fiber Post

Simplify the workflow
Laslo Faith, 3M ESPE, Germany

Metal root canal posts are considered to be reliable and robust and indeed metal posts are very rigid. On the other hand the rigidity of metal posts is also their weakness.

Mastication forces will be concentrated down the root canal to the base of the post. This mechanism is also known as the “wedge” effect, as this force could in some cases generate a root fracture.

Additionally transparent ceramic restorations will allow dark posts to shine through and create a greyish appearance of the final restoration.

Advantages of RelyX Fiber Post

The new generation of fibre posts, like RelyX Fiber Posts reduces the risk of root fractures, as their flexural behaviour is similar to that of dentin. This will enable the posts to bend and spread forces equally into the dentin. This quality is attained by the specific design of the posts: glass fibres are embedded into a resin-composite matrix.

A unique manufacturing process and high quality standards allow creation of high performance posts.

With RelyX Unicem Self-Adhesive Resin Cement a very high bond strength to the post is achieved even without the need of silanisation.

Fatigue testing provides a more realistic indication of clinical performance.

RelyX Fiber Post survives 5 million test cycles in a fatigue testing machines, while many other posts tested failed early.

RelyX Fiber Posts are available in 3 sizes, with calibrated drills. The posts’ tapered shape allows minimal root dentin removal and the posts length can be easily adjusted.

RelyX Fiber Posts are translucent, so suitable for aesthetic restorations and allow additional light-curing. A hygienic blister packaging and colour coded posts will make safer use and assistant’s life easy.

RelyX Unicem cement is the choice for cementing RelyX Fiber Post. Besides high adhesion even without pretreatment of the tooth or silanisation of the post the elongation tip for the RelyX Unicem Aplicap allows direct application of the cement into the root canal. With this instrument the root canal can be filled without trapping air. This helps to achieve optimal bond to tooth structure and to reduce failures.

Simplify the workflow
Laslo Faith, 3M ESPE, Germany

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A unique manufacturing process and high quality standards allow creation of high performance posts.
Dental practices are placing more and more emphasis on prevention. Increasing numbers of dentists, and their dental teams, are adding professional prophylaxis to their list of specialisations by setting up separate surgeries and employing specially trained prophylaxis assistants or dental hygienists (DH). One of the reasons for this trend is that dental practices are experiencing a fall in income caused, for example, by health service reforms. As a rule, prophylaxis is provided on a private basis and thus offers attractive additional business.

It is important to convince patients of the need for regular professional oral prophylaxis (usually 1 to 4 times a year) and to ensure that they remain motivated in the long term. To achieve this, the entire practice team has to play a part in convincing the patient. Some dental practice staff have inhibitions about “selling” additional services on a private basis, and this is where suitable training courses can provide valuable assistance in learning how to present these services successfully to patients.

Prophylaxis patients comprise disparate groups:

- One group places great importance on aesthetics and a well-groomed appearance – which includes clean, white teeth
- For some patients, a certain wellness aspect also plays a part – for them, body care applies literally from head to foot, so regular visits to the dental hygienist are as much a part of their routine as visits to a beautician
- For another group, it is primarily medical reasons which dictate regular professional oral prophylaxis. This includes patients who are at risk of caries and periodontitis, and also wearers of usually costly implants.

Today, a wide range of products for prophylactic treatments are available to dentists.

The most important criteria when selecting such products in the dental practice are:

1. Effectiveness
2. Simple, quick handling
3. Pleasant taste for the patient

3M ESPE meets these requirements and is adding further professional oral prophylaxis products to its successful Clinpro™ product range and professional oral hygiene.

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<tr>
<th>Clinpro Cario L-Pop</th>
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<tr>
<td>Lactic acid indicator swabs</td>
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<td>Preliminary detection and monitoring of individual caries potential</td>
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<th>Clinpro Prophy Powder</th>
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<td>Prophylaxis powder for air polishers/scalers</td>
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<td>Only prophylaxis powder for supra and subgingival use</td>
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<th>Clinpro Prophy Paste – NEW</th>
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<td>Fluoride-containing polishing paste available in different grain sizes</td>
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<th>Clinpro Sealant</th>
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<td>Light-curing fissure sealant with colour change</td>
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<td>In combination with Adper Prompt L-Pop, the number of treatment steps is reduced</td>
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<td>Colour change technology for better control during application (coloured during treatment, colourless after curing)</td>
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<th>Adper Prompt™ L-Pop™</th>
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<td>All-in-one self-etch adhesive in the innovative L-Pop™ delivery system for desensitizing indications</td>
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<th>Clinpro White Varnish</th>
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<td>Fluoride-containing desensitizer</td>
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<td>No yellow discoloration of the tooth surface</td>
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<td>High fluoride release over a 24-hour period</td>
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<td>Hygienic single doses</td>
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Imagine this

Innovation is at the very heart of 3M – the lifeblood of the company’s success. Now, 3M customers are experiencing 3M innovation firsthand in a one-of-a-kind, world-class facility: the 3M Innovation Center. This extraordinary facility showcases how 3Mers make uncommon connections that result in unique solutions for customers. And, since no two customers are alike, no two visits are alike. First, 3M listens to customers to discover what they want to achieve. Then, each visit is customized to meet those needs.

Starting the journey

The experience starts at the front door. Embedded in the sidewalk is a thought-provoking mosaic, depicting the elements of innovation, in nine languages. An audio message welcomes visitors in 13 languages. After all, innovation knows no boundaries.

Inside, interactive wall panels present the scientists who have led innovation at 3M. Pick a year, touch a portion of the screen and meet 3M innovators – past and present. Next, customers reaffirm their expectations of the visit, and travel a passageway that features vignettes – innovation as seen through customers’ eyes and how they work with 3M.

A sensory experience

In a vision-dome theatre, customers see a three-dimensional view of innovation. Special stations feature 3M’s technology and process platforms and how they come together to create life-altering solutions for customers. Other displays offer a kaleidoscopic view of how these technologies and processes are transformed into products and applications that meet customer needs in new ways.

Having gained a new perception of the breadth and scope of 3M’s capabilities, customers next turn their attention to how they can leverage 3M innovation in their business. This energizing journey gives customers a greater awareness of the wealth of solutions that 3M offers. Visitors never look at the word “innovation” in the same way again. Rather, they now can envision many new opportunities for partnering with 3M.

Welcome to visit us:

Address: Building 278, 2350 Minnehaha Avenue, St. Paul, 55144
Building: This 89,000 square foot houses the Customer Innovation Center and 3M’s Leadership Development Institution
Groundbreaking: June 7, 2005
Grand Opening: September 14, 2006

The 3M Innovation Center is an extraordinary experience into how 3Mers work, not what they have done. It’s not a product museum or a traditional customer center. It is a best-in-class, interactive, hands-on experience – a total immersion into 3M innovation.
Today, preventing unnecessary extension and allowing sounder tooth structure to remain is one important aspect of helping patients to maintain their teeth for their lifetimes. The concept of prevention of extension results in very small cavities. Restoring these minimally invasive cavities with a conventional hybrid composite is a challenge, as these composites do not wet narrow cavities very well. As a consequence, incorporation of voids is likely to occur. Secondly, minimally invasive restorations with a small surface area display an unfavourable C-factor (ratio of bonded to unbonded surfaces), contributing to polymerisation stress development during curing of the restoration, which could impair the marginal seal.

Why choosing a flowable composite for narrow cavities?

Flowable composites are THE solution to overcome wettability issues in narrow cavities. Their excellent flow characteristics make them run into the cavity almost by themselves. An overview of benefits coming along with flowable composites is listed below.

Summary of benefits of flowable composites:
- Easy handling, due to direct application/injection
- Excellent wettability of the cavity walls and floor
- Reduced risk of voids in the restoration
- Lower E-modulus (compared to standard hybrid composites), reducing polymerisation shrinkage stress
- No shaping necessary
- Good aesthetics

The good flow of a flowable composite is achieved by a special resin chemistry in combination with a low filler loading. However the filler loading of Filtek Supreme XT Flowable is relatively high compared to other flowable composites and the mechanical properties Filtek Supreme XT Flowable are comparable to those of Filtek Supreme XT Universal Restorative. Furthermore the Nanotechnology contributes to high wear resistance of the Flowable and the inclusion of a rheology modifier improves handling characteristics.

Why was Adper™ Prompt™ L-Pop™ Self-Etch Adhesive for this study?

When using an etch and rinse system in minimally invasive cavities the adhesive procedure will probably take longer than the restoration itself. Therefore, self-etching adhesives are often preferred for minimally invasive cavities.

Summary of benefits of Adper Prompt L-Pop
- Easy and quick handling, helping to reduce the time needed to restore the tooth
- Proven clinical efficacy in daily practice
- Ability to etch unprepared enamel

Specially the last feature becomes especially important in small cavities, since the risk to create filling overhangs is relatively high. With Adper Prompt L-Pop overhangs are bonded to the enamel, while with adhesives, that do not etch unprepared enamel, delamination of the overhang with the risk of dye penetration is likely to occur.

Why doing a practice based study with GDPs rather than a controlled clinical trail at a University?

Clinical prospective studies rank very high in the hierarchy of evidence [1 – 7]. Usually this kind of studies is done at Universities under standardized conditions, with experienced operators and carefully selected patients following rigid inclusion / exclusion criteria. Since a University environment is completely different from a practice environment, results from University studies cannot simply be transferred to a general dental practice [8 – 9]. Therefore it was the aim of this study to evaluate the clinical performance of Filtek™ Supreme XT Flowable and Adper™ Prompt™ L-Pop™ in general practice.

Clinical Results

A Practice Based Study

Two Products working together to simplify Minimally Invasive Dentistry

Annika Meyer, Andreas Syrek, 3M ESPE, Germany
Materials and Methods

20 general dental practitioners in 5 European countries placed 80 minimally invasive restorations (class I or V) and evaluated these at baseline and after 3 months according to modified USPHS criteria. Hereby the marginal adaptation, marginal discoloration, anatomic form, colour match, surface texture and secondary caries were clinically evaluated. The results were reported in an Alpha, Bravo, Charlie, Delta score. Alpha for 'perfect restoration', Bravo for 'not perfect, but clinically acceptable', Charlie for 'not acceptable anymore, but repair possible', and Delta for 'complete failure, immediate replacement necessary'. In addition to the clinical study the handling was evaluated by addressing a questionnaire to the operators of the study.

Results

After 3 months, 67 restorations were clinically assessed (recall rate 83.8%). The reason for drop-out was incompliance of 13 patients. Results indicated a high percentage of alpha scores for marginal adaptation, marginal discoloration, anatomic form and secondary caries.

Filtek Supreme XT Flowable received excellent handling ratings in all properties.*

Practitioners expressed a high level of satisfaction with regard to flowability, wetatability, marginal adaptability, polishability and overall aesthetics of Filtek supreme XT Flowable.

Conclusions

The results of this clinical study indicate that minimally invasive cavities can be successfully restored with Filtek Supreme XT Flowable and Adper Prompt L-Pop. The high flowability, high strength, high wear resistance and good aesthetics of Filtek Supreme XT Flowable combined with its excellent handling properties are the key for clinical success. The high percentage of marginal adaptation is an indication of the reliable adhesion provided by Adper Prompt L-Pop. The 2 materials used in this study combine clinical efficicy and convenience. What more does a practitioner want?

*Bibliography

Eyes light up on arrival of the shipping crate. 2 x 2 metres of high-tech equipment encased in wood hover 10 m above the pavement and move towards an opening in the wall of the house. The road has been cordoned off for hours, while neighbours watch spellbound as the special crane slowly inches towards the makeshift loading ramp. Traffic police applaud whenever obstacles such as lampposts and treetops are skillfully circumnavigated.

The happy and expectant mood is rather like when the final tile is set on the roof of a longed-for home of one’s own. But it is more than property investment that is involved here – it is opting for a forward-looking technology in this case. The avant-garde dream of quality-oriented dental technicians has come true here, allowing them to achieve new heights in the field of all-ceramics thanks to a remarkable system.

Completion was preceded by many months of planning, just as when someone builds their own house. The options for working with Lava products are no less varied than the little surprises that challenge the Lava team when delivering a new Lava unit somewhere in the world. Despite carrying out a detailed site inspection in advance, consulting structural reports, agreeing the room design with architects and contractors, there is always some problem to be solved.

As far as shipment is concerned, it merely has to be ensured at the start that a scanner, milling unit and furnace are all simultaneously available at the work location.

A marginal gap of 20µm is not a problem during routine work on Lava crowns and bridges – but it is when it comes to installing the machine.

Unconventional introduction to a remarkable system that has already demonstrated its worth time and again through its robust yet precise performance.
What may sound trivial may prove to be a real headache for the service engineers on site – every country has its own import regulations, and sometimes there is a problem with the rules for the importation of coolants, another time with correctly specifying the units of measure normally used in that country.

The experience of setting up far more than 100 milling centers all over the world has already turned the Lava team into logistics experts who know, for example, what type of aeroplane the milling unit will fit into, how the aircraft needs to be loaded and how the equipment can best be stored during the flight.

On the long journey towards functional installation, the weight of 700 kg just for the milling unit is a constant that the team now has no difficulty in mastering – it is the outside dimensions that are more critical here. A non-standard door, an extra stair landing or a new stair-rail may prevent the lift truck earmarked for the task from being used here, while stable ramps have to be set up at short notice or window frames removed altogether and this means that sometimes a literally “flying” introduction to CAD/CAM technology will take place. For aspiring milling centers these are all unforgettable episodes which soon become amusing anecdotes among the Lava team and form part of their pride at having taken the right decision.

Thanks to strategic coordination and advance planning it has been possible to deal with the little problems cropping up with every installation to the customer’s satisfaction so the system could go on-stream just a few days later.

Often the deep and rhythmic purring of the milling unit in the very first night testifies to the zest for action of the satisfied Lava dental technicians who have already undergone first-class training beforehand.

Lava products go worldwide – and how high is your stair-rail?

We are a milling center! Beaming faces as the machine stands ready – let the work commence.
It was one of our most exciting development projects and kept us busy for two years, involving almost every department of the company. Together we turned our ambitions into a great result: 3M™ ESPE™’s appearance at IDS 2007 gives way to a new vision of dentistry.

With an exhibit space of more than 433 m² our brand new booth concept invites you to perceive innovative dentistry with all your senses. On the “Walk of Innovation” we rolled out the red carpet for dental professionals who are innovation minded like 3M ESPE: Highlights of the year are at your hands. Feel them, use them, taste them! The presented topics range from impressioning, CAD/CAM-ceramics, latest scanner technology and prevention to a new generation of composites, cementation in one step, temporary solutions and our advanced development-concept for digital impressioning.

The “Walk of Innovation” is connected to the “Lava™ Corner” with Lava™ Scanners and screens that showcase the scanning process and further procedural steps. An additional booth area at the opposite side of the main booth offers a comprehensive presentation of the Lava™ system. Visitors can experience the entire Lava™ procedure - absolutely live - including milling and sintering.

You will be excited to get involved even into science: At the “Stage of Innovation” live demonstrations with renowned experts and multimedia presentations featuring high-end animations will give you insights into a surprisingly vast array of innovative solutions. Lava™ layering courses will be held in this area twice a day.

3M ESPE hostesses will guide you to our highly motivated consultants who attended intensive training for IDS. Our experts at 16 consulting desks on the booth will show you new perspectives of success for your practice – tailor-made to your individual needs.

Experience the fascination of top-level dentistry, created by you and 3M ESPE. Get in touch with its innovative impact, embracing a colorful scale of issues, from latest molecular developments to pure emotion and aesthetics. Our new graphic design concept conveys this vision we want to share with you.

Innovation at 3M ESPE is also tightly connected with our comprehensive commitment to support you. For this reason service is key - and not an add-on. Feel invited to be demanding, we will be pleased to surpass your expectations – in your daily practice and at IDS 2007. 3M ESPE is located at hall 4.2, booth number G 90, directly at the corner between south and east entrance of the hall.

We are looking forward to seeing you.
Filtek™ Silorane, low shrink posterior composite

Breakthrough in low shrinkage

Annika Meyer, 3M ESPE Seefeld, Germany, asks the developer

At IDS 2007, 3M ESPE will be presenting a new composite with a shrinkage of less than 1%. Which gap in treatment planning will this composite fill?

Yes, we are now able to offer the dental market a composite which minimizes all the problems that polymerization shrinkage can cause with conventional composite fillings. Such as microcracks between composite and tooth, which may lead to microleakage and secondary caries in the long term.

In various studies we have demonstrated that the reduced polymerization stress also makes it possible to reduce the deformation of the tooth, so that the risk of cusp fractures is reduced, even with multisurface restorations. Filtek Silorane Posterior Composite was, as the name suggests, specially developed for direct restoration of posterior teeth. An indication where shrinkage is a special clinical challenge.

That all sounds very promising. How is it achieved?

Filtek Silorane is based on a completely new technology. Siloranes are cyclic compounds which polymerize by a ring-opening process, thereby largely compensating the polymerization shrinkage.

With conventional, methacrylate-based composites, the essentially linear molecules converge before polymerization. In other words, the restoration shrinks. Thus, it was only possible to compensate this shrinkage to a certain degree by adding a higher proportion of fillers. However, shrinkage of less than 1% today can only be achieved with the aid of silorane technology, so far.

Does that also mean simpler handling when placing restorations?

In general, Filtek Silorane is also a composite, which means that it requires protection against moisture during placement, too, and should be applied and polymerized in increments of 2.5 mm in maximum.

However, when you place the material in the cavity, you will soon notice how easily Filtek Silorane can be adapted in the corners of the cavity floor. It models well, so the occlusal surfaces can be built up properly to ensure correct function. You any longer have to turn the operating light away and work in the semi-dark either. Filtek Silorane allows you up to 9 minutes to form the optimal occlusion and articulation without the material is unintended polymerized before you’ve finished.

What is the situation with advance studies?

We have, of course, subjected this technology to rigorous testing, and from the clinical application trials dentists evaluated excellent handling characteristics. Filtek Silorane is a dedicated system, consisting of a system adhesive and the composite. Dentists in private offices and at universities, experts in materials science and even pharmacologists have been involved in studies and have provided us with valuable information. As with all our new products, we will compile FAQs, available studies and tips and tricks to facilitate your start with low-shrink technology.

Here at IDS we would first like to present Filtek Silorane – and you’re welcome to bombard us with questions at the 3M ESPE booth.

Congratulations to your team!
For more than 4 years now, at 3M ESPE educational events, knowledge transfer and information have all been associated with the brand “Espertise” combined with a certain design and layout of print materials and presentations and for example this magazine: the Espertise Magazine. What is the meaning of this brand and what is behind it? In the past, customers quite often told us that among the daily flood of incoming papers it is very difficult to separate information from advertising or product promotion. Therefore, useful information often gets lost in the basket. With Espertise, 3M ESPE developed a new umbrella brand, to make the separation of advertising and information easier for our customers.

Knowledge you can use, information you can trust

Espertise is your source for independent, objective information on the latest dental advancements. We deliver a timely range of reliable technical insights and clinical results to dental professionals worldwide.

What kind of Espertise offers are available?

• There are big events with lectures given by leading experts as well as seminars and courses with practical exercises („hands-on“) for smaller groups (Expert Education, Focus Dental Seminars, Lunch and Learn). And there are some interactive learning programs.

• During international scientific Symposia as well as Roundtable meetings, leading scientists from universities all over the world and from 3M ESPE are working together to design future of dentistry.

• For the first time in dentistry, such events were documented and published on interactive CD-ROM and thus made lectures as well as discussions available for a broader audience.

• With speakers contests (Talent Award) as well as special technical and lecture performance trainings for speakers Espertise is supporting young scientists, the “stars” of tomorrow.

• Together with leading international experts guidelines around selected topics (like Ceramic, Impressioning or Adhesive Technologies) are developed and published as well as collections of scientific abstracts (Scientific Facts)

• On a regular basis, the online magazine “Experts News Source” is sent out to registered readers, mainly international opinion leaders.

• Last but not least this Magazine shall be named, which in two to three editions per year is reporting about clinically relevant subjects and developments. Espertise Magazine is translated into several local languages and at the moment has a total global edition of around 120.000 prints.
Where to find Expertise offers?

There are several regional differences in the programs being available locally. For example in Germany for 2007 about 1800 Expertise events are planned. In other countries perhaps the offer is limited several big events each year. To obtain up to date information regarding local Expertise programs it is best to contact local 3M ESPE representatives of your country.

On a regular basis, trainings for customers take place at the 3M ESPE education centres. Besides the central Customer Information Centre in Seefeld, Germany, there are further dental training centres in other countries like Brazil, Mexico or Russia. Others are coming. Also at some local 3M Customer Innovation Centres, trainings for dentists are available.

The 3M ESPE Customer Information Center in Seefeld, Germany

The Customer Information Centre in Germany organizes special trainings on request for international customer groups in German, English, French, Italian and Spanish. Hereby the focus is on information about latest developments and trends in dentistry as well as guided company tour of the production and development facilities. The plant in Seefeld is situated in beautiful surroundings close to the Alps, a few miles from Munich city centre. Thus education can easily be combined with sightseeing for example to the famous castles Neuschwanstein (“Disney Castle”) or Linderhof as well as famous places in Munich like the new football stadium.

What are the reasons for a manufacturer to be active in the field of education and information?

There are three main reasons to be named:

**We want our customers to be successful**

We are all sitting in the same boat. Success includes both clinical and economic success. To be successful, you need actual knowledge how to deal with innovative dental materials to avoid failures by handling mistakes. With Expertise, 3M ESPE is offering the information, education and scientific events needed for you clinical success. We want to help you, to satisfy your patients and strengthen the trust based relationship to your customers by reaching high quality results with innovative dental materials – 3M ESPE products.

**Quality management by transfer of knowledge**

Quite often you as a user are at risk of failures. And it is often easy to blame the material for the reason of failure. But in fact, the handling of innovative materials like dentin adhesives is very sensitive and often combined with complicated procedures. Especially when being under time pressure, mistakes in handling may happen. Less mistakes = high customer satisfaction with the used material seem to be the simple formula for customer satisfaction. Reason enough for a manufacturer to be active in the field of knowledge transfer.

**Partnership for success: strengthen trust based relationship to our customer**

3M ESPE is interested in customer relationships that are based on trust. Clinical success with our products strengthens that trust, also trust in the quality of the products. At the same time the readiness for innovation, for the acceptance of innovative products will increase.
The chemical synthesis from 3M ESPE

On familiar terms with molecules

Heike Fürst, 3M ESPE Seefeld, Germany

Dentistry has made tremendous advances over the last decade or so. Innovative products frequently improve the quality of treatments or make handling simpler. It is often the research and development carried out at 3M ESPE that paves the way to such innovations in dental products. To ensure that dentists’ suggestions for improvement and researchers’ ideas can be reliably translated into high-quality dental products to optimum effect in all cases, 3M ESPE operates the largest department for chemical synthesis in the whole business.

From the raw material to the dental product

Already the pioneers of 3M ESPE laid the foundation stone for the success of the company through the innovative force of their chemical methods for dental products. During chemical synthesis, simple raw materials are used to produce a chemical compound, resulting in a tailor-made substance after many process steps.

The greater the mastery of the processes and reaction conditions involved, the more skilfully a dental product can be created with completely new properties by adjusting the temperature, pressure, catalysts, concentration, pH value or solvents. A science in itself.

Quality control step by step

The challenge for all 20 employees in the Chemical Synthesis department at 3M ESPE is to manufacture the product ideas of their colleagues from Research in uniform quality and on an industrial scale for all dentists throughout the world. To ensure that quality always meets the required standard, checks are made by 3M ESPE after every processing step from the initial raw material to the finished product. This allows the properties of a product to be controlled down to the smallest detail – be they impression or composite materials, local anaesthetics or glass ionomer cements.

While many manufacturers, through a lack of in-house chemical synthesis facilities, are only able to make their products using prefabricated standard materials supplied by the big chemicals companies, 3M ESPE attaches enormous importance to dental-specific control of the entire production process. It is a major difference whether a raw material is destined for the production of adhesives or for use in the human body. In many cases standard chemical materials cannot offer the long shelf life of dental products either.

Reliability has a name

As the entire production process is in the hands of 3M ESPE’s experts for most of the products, the company knows exactly how every material used responds down to the smallest detail. Using this knowledge the company is especially careful when launching new products or extending the indications of existing ones. Only products which keep their promises are allowed to leave the company.
Besides the company’s power of innovation, it is the extremely high level of reliability that 3M ESPE has stood for to date in the eyes of dentists all over the world. The production volumes offer a wide spectrum - from mere grammes all the way up to tonnes. For customer enquiries, the company is able to perform full analysis of the manufacturing process for the product concerned within 24 hours. The fact that to date it has never yet been necessary to trace a batch due to quality defects demonstrates the reliability of the quality management system for chemical synthesis. Such a track record cannot be taken for granted.

**Simply clever: Chemical processes from 3M ESPE**

For some products, innovations from 3M ESPE and their direct implementation by means of in-house chemical synthesis are often better protection from imitation than any patent. This is how Impregum™ polyether impression material was launched in 1965, for example. Although patent protection only lasts 20 years, and not only the production process but also the content have been publicised by the patent, other manufacturers still do not have the specialist knowledge required to produce the primary ingredients specially developed by 3M ESPE.

For this reason, the Chemical Synthesis department in Seefeld, Germany, is also responsible for supplying the 3M ESPE production plants throughout the world with raw materials or intermediate products. Other 3M subsidiaries are also happy to call on the chemical know-how of their dental colleagues. Conversely, the chemists at 3M ESPE can take advantage of the short paths within the 3M group and make use of its virtually unlimited laboratory capacities or the group’s enormous pool of equipment available for the development of new dental products.

**Clever minds – safe systems**

To guarantee such a demanding and complex production process, 3M ESPE mainly employs highly qualified staff from the field of natural sciences, in particular for R&D and chemical synthesis. For example, besides a large number of chemists, the company also has three production engineers who look after the chemical systems and perform further development.

When chemical synthesis is involved, safety is paramount – from approvals for systems and processes to the company’s own purification plant or the special air filter system. For new dental products there are many other materials which also need other approvals and the procurement of new production facilities.

**Investment for dental innovation**

With all these requirements a truly innovative company always has to be willing to make major investments in the future of dentistry. If such investments are carried out, as in the case of 3M ESPE, and combined with the potential of a large research group, the benefits are obvious. New wishes from dentists and product ideas from R&D can be swiftly followed by implementation – raw materials do not need to be procured, processing does not take long and the ability to deliver is always assured with stringent quality requirements on the raw materials and finished product.

Last year alone 50 preparations for new substances in chemical synthesis underwent testing in Seefeld, to make sure that the products from 3M ESPE continue to ensure true innovations in the dental practice.
Calendar of Events 2007

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