TENCATE

2010 | number 1 | spring

THEME: SAFETY & PROTECTION

txtures

TenCate

Royal Ten Cate (TenCate) is a multinational company which combines textile technology with chemical processes in the development and production of functional materials. Various market applications have been created around this technological base. TenCate occupies leading positions worldwide in its core markets.

TenCate's growth is based principally on global trends, namely, safety / protection and sustainability / the environment. TenCate materials are principally used for:

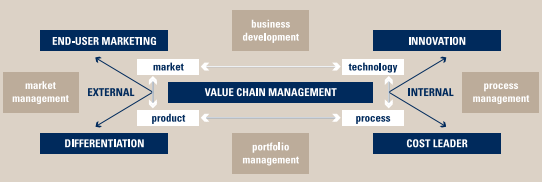
- personal safety and the protection of living and working environments;
- modernization of military and police equipment
- space and aerospace (reduction in fuel costs through lighter materials);
- water management and environmental protection;

TenCate's strategy is based on the concept of value chain management. The four cornerstones of this policy are:

1. cost leadership;
2. product differentiation, focusing on specific applications and customer requirements;
3. end-user marketing and an industrial intellectual property policy;
4. technological innovation.

These four cornerstones within the TenCate business model are related to market, product, process and technology, and the interaction between them.

In txtures the trends, cornerstones and other essential elements of the business model are referred to as often as possible. In this spring edition, we portray in particular TenCate's performance in the field of safety and protection.



txtures - renewed

Good timely communication has a positive influence on image creation. It plays a contributory role in enabling TenCate employees, business relations and other interested parties to identify with the company.

TenCate is more than a maker of materials. In our work we are solution-oriented and innovative and can rely on our broad technological base. Above all we work together with colleagues all over the world and propagate the same philosophy – naturally based on an umbrella strategy. It is the mission of txtures to clearly delineate this image. By means of the printed page we want to demonstrate to a broad target group the importance of our activities for customer and market. By increasing the relevance to you the reader, we hope that your commitment to TenCate will grow – whether you are an investor, analyst or employee..

Our activities are based on socially relevant themes: safety / protection and sustainability / environment. This creates our identity, our profile. And related to this are the market trends: how can the themes be translated into demand for our materials? and where do our sales come from? In this renewed, more thematically oriented format of txtures we show that the themes constitute the cohesive factors in our company. We also make a direct link with other media, such as our website, where we give more in-depth information, for example by providing background information, topical photos and film clips. Naturally thought has also been given to personal contact and most of the report includes the name of a TenCate colleague who can personally and proficiently provide further information.

txtures is published four times a year. The publication dates are linked to our financial reports, so the magazine is up to date on that point too.

I hope that the renewed format arouses your interest in the developments within our company and also inspires you to challenge us to come up with new solutions.

Frank Spaan, director investor relations & corporate development

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Protection for man and material

TenCate develops and produces functional materials that are distinctive on the basis of their qualities. The company focuses on worldwide trends in the areas of safety & protection and sustainability & environment. In txtures 1 the focal point is safety & protection and we are highlighting two market groups that are active in this field.

Within TenCate, TenCate Protective Fabrics and TenCate Advanced Armour focus on the safety and protection of people, vehicles, ships and aircraft that have to perform under widely divergent and demanding conditions. The materials of both market groups provide optimal protection and safety, as well as considerable wearer comfort and the lightest possible weight, depending on the level of threat.

TenCate Protective Fabrics and TenCate Advanced Armour collaborate worldwide with fibre and chemical manufacturers, laboratories, knowledge and test institutes, government authorities, garment-manufacturers and groups of end-users. This constantly leads to greater knowledge, new insights, innovations and above all the system approach. As a result TenCate is setting the trend in material science: the combination of textile technology and chemical processes.

Through continuous product development and cooperation with various parties in the value chain, TenCate has also secured important positions in these markets. When it comes to protective fabrics for work and safety clothing, TenCate Protective Fabrics is world market leader, while TenCate Advanced Armour ranks among the world's top five producers of antiballistic materials and is the biggest player in Europe in the field of vehicle armour. The positioning of TenCate is supported by an industrial branding policy that is based predominantly on the quality and functionality of high-grade protection.

In the middle of November 2009 TenCate Protective Fabrics and TenCate Advanced Armour jointly presented new and improved protective solutions for the army and police at the Milipol exhibition. Milipol is the world's largest trade fair in the area of domestic and foreign safety and protection. The protection solutions are the result of the cooperation between the two market groups in the area of materials, finishes and application possibilities.

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Protection on the job

TenCate Protective Fabrics wants to protect people who are exposed to safety hazards during their work. To this end the market group supplies a range of technically advanced fabrics and systems whose functionalities are tailored to the working conditions and end-user. This synchronization is based partly on the contacts with partners in the value chain, such as fibre suppliers and garment-manufacturers.

TenCate Protective Fabrics focuses on four market segments: industrial safety, emergency response (fire and emergency services), the military & police (defence & police) and services & industry (service provision & industry). The market for professional and work clothing is stringently regulated, with personal protection equipment for certain hazard areas being specified within the context of employment legislation.

Safety hazards

People in many jobs are exposed to dangers and safety hazards, ranging from heat, flames, molten metal spatter and liquid chemical splash to electric arcs, static electricity and poor visibility. Not only is a safe working environment then called for, but clothing too must provide protection.

In this respect TenCate Protective Fabrics offers a wide range of technologically advanced fabrics that incorporate characteristics that are important on the job, such as wearer comfort, breathability and moisture management, premium durability and easy maintenance. It's a question of room to move: freedom of movement at every level. This was the theme of the new collection that TenCate Protective Fabrics presented at the A+A trade fair held in Düsseldorf at the end of 2009. The spearhead of this collection is that users are optimally protected and can optimally move in safety wear. So wearer comfort is high on the list of priorities.

Multi-layer solution

Some risks are of such a nature that optimal protection is possible only by combining fabrics and materials in a multi-layer solution (system). In the systems offered by TenCate Protective Fabrics each protective layer has specific functionalities and the layers are tailored one to another. Here the basic principle is to keep weight to a minimum in order to offer optimum comfort. A good example is TenCate Tecasystem™ for firefighters' turnout gear in Europe. TenCate supplies all the relevant components: outer shell, moisture barrier, protective thermal fabric, thermal liner, reinforcement for knee and elbow pads and cuffs. The TenCate Defender™ M collection consists of fabrics for optimal protection against such hazards as heat, fire and static electricity, and areas of application include the army, the air force and the police. Indeed TenCate Defender™ M is the American standard for combat uniforms for the American army and the United States Marine Corps.

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On land, at sea and in the air man and material must be protected. In this respect TenCate Advanced Armour offers armour solutions based on lightweight ceramic and composite materials. In order to realize the optimal configuration for protection, TenCate Advanced Armour collaborates with raw materials suppliers, manufacturers of bullet-proof vests, vehicle manufacturers, test and knowledge institutes, and others.

Strong, light and durable

TenCate Advanced Armour offers protection solutions in the form of customized armour based on lightweight ceramic and composite materials (soft and hard armour). These solutions focus on personal protection, the armour-plating of vehicles and ships, and the protection of installations (containers, buildings and other constructions). TenCate Advanced Armour is divided into four segments: personal protection, military vehicles, vessels and aircraft, vehicle armour, and ballistic protective fabrics and prepregs. Vehicle armour (army/police) in particular is a large market, where the trends are protection against roadside bombs and the need for lighter, fuel-efficient vehicles.

Complex and dynamic

Personal and vehicle protection is a complex, dynamic and global market, which is characterized by numerous international standards and as a rule involves public tenders. Important factors in the right solution are often weight, performance or price – or a combination of these. With an eye to mobility, manoeuvrability and energy consumption, vehicle armour must be as light as possible while still providing the highest level of protection and mobility required. Consequently ceramic and composite materials have the advantage because they are considerably lighter than steel, for example, which was traditionally used. Furthermore product life cycle is going to play an increasing role. When it comes to application in vessels, it's a question of protecting vital areas on board. TenCate also wants to protect the crew: from the naval personnel on the launching pad to the seamen on the lower decks.

Configuration

TenCate Advanced Armour collaborates with other parties in the value chain in order to be able to realize the optimal configuration for protection. These include raw materials suppliers, producers, vest and vehicle manufacturers, purchasers, (end-)users and companies that build inserts into vehicles (integrators). TenCate Advanced Armour itself integrates armoured prototypes. Contacts are maintained with ministries in order to follow developments in commissions and requirements, while fundamental research, for example into new materials, is carried out with universities and knowledge institutes. You can read more about the R&D efforts on page 6.

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TENCATE'S POSITION IS THANKS PARTLY TO INNOVATION AND DIFFERENTIATION

R&D -basis for protection s

Production of composite materials at TenCate Advanced Armour in Vissenbjerg (Denmark)

Within TenCate Advanced Armour R&D teams research is focused on new fibres and materials, and new and improved protection solutions are being developed. Cooperation and communication between the different locations worldwide are crucial here.

The activities in both the US and Europe focus on composite and ceramic armour solutions for vehicle, aircraft, naval and personal protection and the armour plating of aircraft and naval vessels. In the US significant full-time engineering resources are evaluating currently available ballistic fibres and polymers, in order to develop anti-ballistic unidirectional materials for use in the

solutions

company's own hard armour solutions, as well as to sell as soft armour rolled goods to open markets. In Nijverdal the company works on concepts and applications for soft armour, on new prepregs for hard armour end-applications and the ongoing development of the TenCate Pro-Tector® technology.
At TenCate Advanced Armor USA, Joe Dobriski is responsible for the efforts in the field of R&D in the United States, while his counterparts in Europe are Helle Specht in Denmark and Robert Lenferink in Nijverdal.

R&D with applied technology
In fact within TenCate Advanced Armour it's a question of combining R&D with applied technology. This combination offers the customer a series of solutions on the basis of lighter, better and more cost-effective materials. Products where the cost price is a contributory factor in the purchase also account for part of the sales. 'Threat levels are constantly changing. We have to ensure the best available protection not only for soldiers and civilians in war zones but also with an eye to terrorist attacks. With a wide range of products and R&D as our strength, we can project a distinctive image.'

The R&D process – what and how?
The R&D process embraces design, construction, ballistic tests and analysis. This empirical cycle is repeated until the optimal solution is realized. Granulates, fibres, composites, adhesives, cling foil, ceramics, coatings, paints and metals – all are grist for the mill during the development process. Combinations of no less than 76 different materials or forms of material have been used in the armour systems developed to date. As soon as new material concepts have been tested, the R&D engineers determine the segment or segments where the materials will ultimately be applicable. After that, the optimalization of the concept begins. The test data are processed in statistical ways, which serve to underline the fact that the material or system meets all requirements and the chance of disappointing performances is negligible. Maybe it's a question of development projects for the short term; maybe applications for which as yet no solution is available. Sometimes it takes several months to come up with the right solution, whereas for shorter-horizon projects it may be a matter of only a few weeks.

Internal cooperation in R&D
TCAA's US and European armour groups cooperate to maximize their ability to share concepts and solutions and win on a global scale. Different test standards and requirements apply in the US and in Europe and market demands often differ. This can present challenges to proliferating solutions globally but enough commonality exists to foster excellent cooperative efforts.
The teams meet up at least twice a year to discuss ongoing projects. A great deal of exchange is conducted by e-mail, although this exchange is limited because of the legislation known as the International Trade Administration Regulations (ITAR), as well as other restrictions imposed by government authorities. Last year, however, the United States Department of State issued TenCate Advanced Armour with a Technical Assistance Agreement that allows technical information to be exchanged. 'And from that moment on cooperation became possible. Consequently our mutual communication is now a little more profitable and we're managing to be more competitive when it comes to new tenders.'
By intensifying the cooperation between the Advanced Armour, Aerospace Composites and the Protective Fabrics groups we would gain clout in the antiballistics market

External cooperation in R&D
To stay abreast of all the developments and changes, there's nothing like direct contact with the customers. This is the reason why the technical people on the sales team are also involved in R&D. They know the customers and listen to their wishes and demands – which are then well documented. Through their involvement in projects, developments can be tuned to the wishes of the customer or user. This makes it possible to set priorities for certain projects and is also useful with an eye to both assignments in progress and those in the future. Naturally the technologists also take part in conferences, trade fairs and specialized training courses. Finally there are military advisers attached to the R&D group, who contribute information relating to their own specific background.
Thus, R&D teams in the US and Europe give substance to technological innovation and product differentiation, two of the four cornerstones of the TenCate business model.

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TENCATE PROTECTIVE FABRICS EXPANDS RANGE AND CUSTOMER BASE

The shortest way t

TenCate Protective Fabrics focuses on four market segments: industrial safety; fire and emergency services; the army and the police; industry and services. The market group is continuing to expand its range, focusing on specific customer demands. Within the range of flame-resistant materials for army uniforms, not only have new products been developed and approved for future projects but work is also in progress on new applications.

TenCate Tecasafe® and TenCate Defender™ M have now proved themselves in the international arena as well. In 2008 TenCate Defender™ M was proclaimed the American standard for uniforms with flame-resistant protection. The American army commended TenCate for this innovative product – one of the important pillars of TenCate behind the strong growth in the defence markets. Within the framework of end-user marketing, the TenCate Defense & Tactical business unit, part of TenCate Protective Fabrics, works in close cooperation with the end-user in developing specifications. In North America there is a trend from material specifications to performance specifications. 'We help the army to draw up specifications for the characteristics of the material and, in doing so, set them on the shortest way to the right clothing choice.'

In Europe

In Europe the focus lies primarily on the development and introduction in 2010 of a new generation of TenCate Tecasafe®. This development is prompted partly by the increasingly stringent demands. According to global R&D manager Mike Stanhope, 'It is a multi-risk solution that will please industrial laundries too. Clothing can be washed more often, and that's important if you want to distinguish yourself from other suppliers.' The material offers both technological and commercial advantages: the material is superior to other qualities currently on offer and the customer gets greater value for money.

New fibre blends

In addition TenCate Protective Fabrics wants to move from 100% aramid materials to new fibre blends. These provide the same wearer comfort and level of protection, have a longer life span and incorporate other functionalities – all thanks to these new fibre blends. 'We shall never make any concessions in the area of protection and safety.' Specialists within the R&D teams focus continually on monitoring and testing new available fibres. Blending different types of fibre is the most important basic building block for the market group, followed by chemical processes. When all's said and done, the development of fibres for fibre suppliers is a lengthy process.

TenCate Protective Fabrics wants to grow in the emergency response market in Europe, and with the supply of multi-layer systems the preparations in this respect are well underway. The development of most materials and systems is initiated at the plant in the US.

They are then adapted to the European market, where a production line is set up. A number of these have been brought out on the market and now it's a question of waiting for reactions and the outcome of wearer trials.

Ongoing development in the USA

TenCate Protective Fabrics USA has secured nearly 70% of the fire service market in the US. TenCate Tecasafe™ Plus, a development stemming from TenCate Tecasafe® in Europe, has been launched on the market for industrial safety. In its turn, the Plus quality is the starting point for a subsequent development that will in due course be able to succeed the present TenCate Tecasafe®. In the United States the market group is on the eve of launching TenCate Comfort MP for multi-risk protection. It is a development of TenCate Comfort Blend that, while retaining the protection and durability of the original material, is more comfortable and can be produced more cost-efficiently. So in this instance TenCate is competing in terms of the best price-quality ratio.

to the right choice

Forest firefighting
Second important point of attention: clothing for forest firefighting for not only the federal authorities but also the state authorities of California. After the federal authorities, this state has the largest wildland firefighting corps. The members wear 100% aramid-based clothing and are interested in cheaper and better alternatives. Wearer trials on the basis of such qualities as TenCate Defender™ M-type fibres and variants of TenCate Tecasafe™ Plus with high visibility are currently in progress. The federal authorities work with fire-extinguishing aircraft so the firefighters have to be clearly visible. Before long a new system layer will be introduced for the thermal liner. This inner thermal layer in the clothing will protect firefighters from both the intense heat and radiant heat.

Family addition
Thirdly more work is being carried out to extend the TenCate Defender™ M family in the US. Examples include an inclement climate combat shirt for bad weather conditions and other knitwear. The expansion of the TenCate Defender™ M platform also incorporates versions of non-wovens with camouflage print. 'Many firefighters used to be in the army and are therefore keen on such print.' All these efforts are geared to making TenCate Defender™ M even better: with improved durability and colour fastness, and with more varieties (product differentiation) available for operations under the most diverse weather conditions.

- **The R&D groups are constantly working on product renewal and improvement, as well as on cost reduction – all geared to enabling TenCate Protective Fabrics to stay ahead of its competitors.**
- **If possible, products are patented, which automatically distinguishes them from the rest. With brands and patented products and processes, you are able to offer something unique.**

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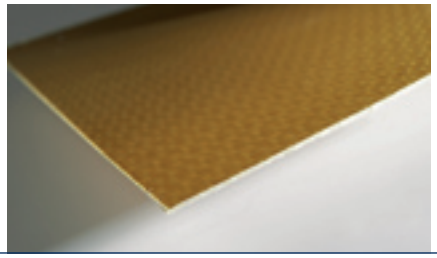
TENCATE CERATEGO™ FOR MILITARY VEHICLES IN AFGHANISTAN



In June 2009 TenCate Advanced Armour EMAE received an order from the Dutch Ministry of Defence for the delivery of TenCate Ceratego™ composite armour panels for the Dutch Patria XA188 vehicles that are currently being deployed in Afghanistan. Delivery will be completed in October 2009.

MARKET –military and police vehicles **PRODUCT** - TenCate Ceratego™ composite armour panels **TECHNOLOGY** –fibre, composite (weaving) and coating technology **PROCESS** –fabrics are compressed into panels, finished with resins and pressed into the desired shape under pressure and temperature

Extra armour for XA188

Patria-voertuig

TenCate Ceratego™ is a lightweight composite vehicle armour, which restricts to a minimum the weight added to the vehicle. The armour material is ideally suited as backing behind the strike face of the armour panels. TenCate Advanced Armour aims to operate a system approach by working together with vehicle manufacturers and their customers in order to achieve the optimum configuration for vehicle protection. The balance between protection and mobility is a key factor in armoured vehicle design.
TenCate Ceratego™ provides protective solutions made with a hard strike face, based on a range of different types of ceramics or metal, with fibre material backing. The TenCate Ceratego™ solution from TenCate Advanced Armour has been designed to be able to resist KE (kinetic energy) projectiles to a classified level.

- **Composite armour panels offer extra protection to Patria vehicles in Afghanistan.**
- **Cost-effective solution based on a system approach.**

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MARKET – Industrial safety, police and fire service. **PRODUCT** – TenCate Tecashield®, inherently flame- and heat-resistant fabrics. **TECHNOLOGY** – Weaving, finishing and coating. **PROCESS** – Fabrics are processed by garment-manufacturer.

The shields of the riot police in the Netherlands are equipped with covers based on TenCate Tecashield®. In the test phase the material scored on such aspects as wear- and fire-resistance.

Cover for riot police shields

The shields of approximately 1500 members of the Dutch Mobile Unit for Riot Control are equipped with new covers and armrests. They give the shield extra protection and make it more comfortable to carry. After a period of inventory and testing, the choice fell on TenCate Tecashield®. Within the Dutch Police Cooperation Facility (vtsPN), Marloes Siewes is responsible for ensuring that the materials in clothing and equipment meet the specified technical requirements. She approached producers and garment-manufacturers and had six sample covers made. These she had tested in the Mobile Unit Riot Training Centre, where stones, empty oil drums, Molotov cocktails and crush barriers were thrown. TenCate Tecashield® emerged as the best and most durable. 'It was wear-resistant, with a good ratio of strength to fire-resistance. The covers remained securely in place on the shields and are chemical-resistant to boot.'

The TenCate Tecashield® quality used in this project is not only lighter but also stronger than other materials, such as leather. The fabric is used as additional reinforcement on those parts of the clothing where wear is most severe, such as knees and elbows. By combining 100% para-aramid fabric with a double-sided coating, it is remarkably strong and provides thermal protection. The covers have now been in use for a year – at least in the large riot squads such as Rotterdam and Amsterdam. The general opinion is that 'this material is fantastic and highly durable'.

Market research

In her job Marloes Siewes is continually looking at what is available on the market in terms of fabrics and other materials. If companies make known what materials they are using and what they are doing as far as development is concerned, she can assess whether a material is suitable for other projects. In this respect she speaks highly of the cooperation and contact with Jan Dijkstra (sales manager TenCate Protective Fabrics). For the Dutch Police Cooperation Facility, it's a question of a combination of factors such as price, quality and logistics, which count for a certain percentage. 'These are our specifications and ultimately the best product wins.'

- **TenCate Tecashield® emerges as best and most durable material for the new covers and armrests for the riot police shields.**
- **Order is good example of targeted end-user marketing.**

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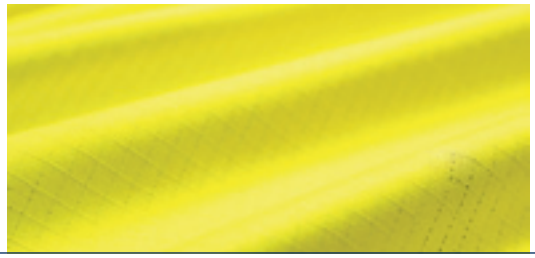
Marloes Siewes (vtsPN) displaying the shield with the TenCate cover

Energy giant praises cooperation

A model in the new protective clothing of EnBW from the TenCate Protective Fabrics brochure Room to move, illustrating how comfortable clothing based on TenCate Tecasafe® is. The brochure is downloadable via the website of TenCate Protective Fabrics.



MARKET – protective work clothing for industrial applications. **PRODUCT** – TenCate Tecasafe®. **TECHNOLOGY** – weaving and finishing. **PROCESS** – Fabrics are processed by garment-manufacturer.

For some years now 5,000 or so employees of Energie Baden-Württemberg AG (EnBW) have been kitted out for work in protective clothing based on TenCate Tecasafe®.

Dietmar Rohrbach, on behalf of TenCate Protective Fabrics EMEA, is responsible for end-user marketing in Austria, Denmark, Switzerland and Germany. His contact at EnBW, the third largest energy company in Germany, was safety engineer Helmut John, who is responsible for systems, infrastructure and support and who sees worker safety as top priority. 'I'm greatly concerned about the safety of the workers and support them in this respect with the appropriate protective clothing. First comes protection, next wearer comfort, and then durability and price.' As far as EnBW was concerned, the characteristics of the new clothing had to be already present in the fabric and the design fully tailored to EnBW. After the tendering process, the various bids were assessed according to the specifications – and TenCate Tecasafe® carried the day. Then a number of garment-manufacturers were asked to submit quotations based on this fabric. A team of experts that is responsible within EnBW for personal protection equipment also came to the conclusion that TenCate Tecasafe® most fully satisfied the requirements.

Dietmar Rohrbach (TenCate Protective Fabrics)

Helmut John (EnBW)

Competition

Helmut John values the cooperation and communication throughout the whole process. However constructive the contacts may be, a call for tenders is by definition an objective and competitive procedure. The description must not reveal who the supplier will be. 'Although EnBW can prescribe the kind of material as a benchmark, we and the team of experts wish to keep our options open. You carry your experiences with you, particularly if two quotations are evenly matched. Now, after a number of years and tenders, we're firmly convinced of the merit of TenCate Tecasafe®.' Experience has taught Dietmar Rohrbach the key to success. 'To be able to give good and objective advice, it's important to have the right know-how at your disposal. We've already been able to demonstrate this in a diversity of projects. And it's also important to be able to offer the customer quality products and service, due date delivery, and advice and assistance in the event of problems. This is the way to build up a long-lasting relationship.'

- **TenCate Tecasafe® best in protection, wearer comfort, durability and price.**
- **EnBW positive about cooperation and communication**

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Setting foot on British soil

Royal Ten Cate has acquired the British armour company AML UK. This will provide TenCate unlimited access to the British market for lightweight composite armour solutions. TenCate intends to expand its position in this market, particularly in armour products for vehicles, aircraft and ships, with a view to the large-scale modernization and expansion programmes that are planned here. This acquisition is another major step in the creation of a pan-European armour organization.

From the left: Guy Wood, James Purves end Lee Fuller

AML UK (Swindon, UK) is a leading company in the armour market in the United Kingdom. It has sixty employees in three facilities across the UK and one in India. The company is principally involved in the design, production and installation of materials for vehicle armouring. AML UK develops concepts, engages in prototyping and designs production processes.

'The company excels in engineering and moulding', Frank Meurs (Group Director, TenCate Advanced Armour EMEA) tells us. 'It has a broad technical package and can supply a wide range of vehicle solutions.'

Complemeting and supporting

AML's activities will complement and support the activities of TenCate Advanced Armour. 'Nijverdal' now has an additional potential customer, just like the facilities in Vissenbjerg (DK) and Primarette (F). TenCate can make a great contribution to the further growth of the already well positioned activities of AML. This company is an important partner to the British government and associated vehicle manufacturers and contract parties. TenCate Advanced Armour designs and manufactures armour materials for the British Ministry of Defence and associated contract parties.

A world-class player

On 9 February the acquisition became a reality with the addition of the necessary signatures. 'Both parties were in favour and had agreed on their objectives.' Frank Meurs told us. After all, they could continue building on the positive experiences they had already enjoyed, such as the successful collaboration on projects for Warrior and BAE Systems. Their contacts stretch back more than ten years. 'AML wanted to be a part of a larger group, a world-class player and preferably to work with agreeable people.' As far as world class is concerned, TenCate Advanced Armour is now an extremely strong player in the passive armour segment in terms of size and reputation. Reactions from customers have been positive and suppliers too see it as a strengthening of TenCate's position, but then in a different way.

Modernization

The United Kingdom is the second largest armour market in the world. Britain's fleet of military vehicles has become very outdated and rapid modernization is essential. In order to be able to tender for modernization programmes for the armed forces, this combination with TenCate is a crucial step in the further development of the AML organization. 'This acquisition can further accelerate AML's growth', James Purves (managing director) tells us. 'For our employees this means they are now a part of a listed company that is developing globally and this provides a solid base for the future.'

- **Acquisition provides TenCate access to the British market for lightweight composite armour solutions**
- **A major step in the creation of a pan-European armour organization.**

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Orders for armouring

TenCate Advanced Armor USA has won various vehicle and personal protection armor contracts amounting to approximately $ 25 million, with a contract option that could result in additional sales of $ 10 million.

These orders come from several American military vehicle OEM's, such as General Dynamics Land Systems and BAE Systems, and also include orders directly placed with TenCate by the United States Army.

Due to a focused broadening of current product lines and the portfolio of customers, TenCate Advanced Armor USA now enjoys a more balanced and diversified business base than that seen in years past and the market group has positioned itself well for the future.

TenCate Advanced Armor USA is involved in a wide array of programs, each with unique ballistic protection systems, such as those for armored Humvee's, Stryker, FMTV and SAPI.

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Stryker CSA

Non-
driest

-wovens in the place on earth

TenCate Geosynthetics is supplying well over 30 million square metres of TenCate Mirafi® non-wovens for the expansion of lithium extraction by SQM in the Atacama Desert in Chile. This expansion is intended to enable SQM to meet the growing demand for lithium for batteries for the next generation of electric cars.

The Chilean company is going to increase drastically the number of evaporation lagoons for lithium extraction in the Salar de Atacama Desert. This is to satisfy the growing demand for lithium for batteries for the next generation of electric cars.
From 2008 to 2010 TenCate Geosynthetics will be supplying well over 30 million m² of TenCate Mirafi® non-wovens to SQM for this purpose. TenCate Geosynthetics is thus making its own 'green' contribution to the future of transport and haulage worldwide.

TenCate Mirafi® geogrids and geotextiles are used for example in civil engineering, water management and pollution control. They are ideally suited for lining the evaporation lagoons. The total of non-woven geotextiles supply involves an amount of $21 million. These materials have been developed and produced by the TenCate Geosynthetics facility in Pendergrass. 'Our man in Chile' is Tom Stephens, who is responsible for the TenCate Geosynthetics operations in South America. He provides additional information about this huge project on www.tencate.com/txtures.

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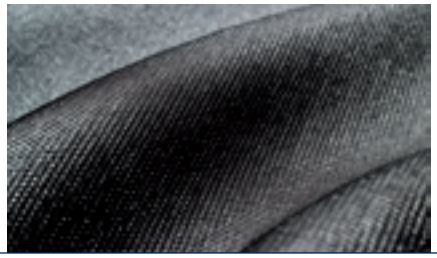

MARKET - Environmental and infrastructure projects (bank protection, dewatering, etc.).
PRODUCT - TenCate Geotube® GT1000.
TECHNOLOGY - Extrusion, weaving and coating.
PROCESS - Consolidation and dewatering (contaminated) slurry.

TenCate provided help in the construction of two dams in a river bed near a storage lagoon for mine tailings slurry in Honduras. The technology ensures storage, dewatering and filtering of polluted ground.

Solution for mine tailings

The El Mochito mine in Honduras has a tailings lagoon that contains large volumes of contaminated mine tailings slurry. Above the tailings lagoon is a large unstable area, known as the Guard Shack Slide, which has the potential to develop into an active landslide during heavy rainfall and to release large quantities of soil, rock and debris into the lagoon (as much as 400,000 m^3). This large volume could displace the contaminated tailings over the dam into the environmentally sensitive area below it or cause a catastrophic failure. This must be prevented and the solution is to construct two dams based on TenCate Geotube® technology.

Before installation of the TenCate Geotube® dam structure, the bottom was lined. After this, drainage pipes were installed parallel to each other, so that no water was retained behind the dams. The tubes themselves were stacked up two or three layers high and filled multiple times with mine tailings. The circumference of the tubes in the higher dam measure 14, 12 and 10 metres, from the bottom up. Thanks to the dewatering of the TenCate Geotube® units the dams gain their final form and solidity.
The use of TenCate Geotube® technology allows the liners to remain in place, the installation costs to be lower and the installation time to be shorter. To date there has been no major movement of the landslide. However, the Geotube® dam structure has controlled large volumes of rainwater and debris that has been dislodged.

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One of the two dams based on TenCate Geotube®

Innovation in process technology

On 18 February Xennia Technology presented its process demonstration model for the digital printing and finishing of textile materials. This new process technology is based on inkjet technology, and Xennia occupies a leading position in the field of digital textile printing relying on continuous industrial production rates. Digital inkjet technology fits in strategically with the cornerstones of (Technological) Innovation and Cost Leadership, as far as the TenCate business model is concerned. 'We are on the threshold of a new era.'


Alan Hudd, managing director Xennia Technology

Inkjet technology is a new nanoprocess technology for applying advanced functionalities on textile and other substrates. There are two aspects to this. Firstly, the size of the drop: nano. This means that coatings can now be applied that previously could not be, thus allowing unrivalled functionalities to be applied to textile substrates. Secondly, this development is intended to bring about a revolution in the field of process technology. Inkjet printing is an existing technology, but is hardly ever applied in an industrial production environment.
In addition to new technological opportunities, this innovative production process provides major environmental benefits and savings in energy. This was part of the reason for European support for this development.

Areas of knowledge

Xennia (Letchworth, near Cambridge) combines various areas of knowledge in inkjet solutions for various applications, such as the packaging industry, labelling and textile applications. These areas of knowledge are to be found in the realm of ink formulation, software (control mechanisms) and hardware (print heads) knowledge. Xennia has entered into an alliance with Reggiani Macchine for the production of machines for textile applications. TenCate will be Xennia's first customer in the field of inkjet finishing. Xennia's business model focuses particularly on the development and marketing of modules and inks/coatings in a number of core areas, which make rigorous demands of flexible and reliable print solutions. Apart from the technical and other textiles sector, this includes in particular printed electronics, packaging, industrial decoration and security printing (identification, security, etc.).

The cradle

It is no coincidence that the surroundings of Cambridge in England are regarded as the cradle of digital inkjet technology. As early as the 1960s the engineering firm Cambridge Consultants was already carrying out research into continuous inkjet pressure for textiles together with the chemical company ICI. After some time these attempts were halted. Domino, a young Cambridge company, then started to work on developing continuous inkjet printers. There was a great deal of interest in this; a great future was foreseen for inkjet, but the technology was still in its infancy. That was 23 years ago.

Scientific expertise

Alan Hudd (managing director, Xennia) was there when it was all happening. He saw many people around him in inkjet development beginning for themselves in the early 1980s. The fact that the EU was gaining more influence, standardizing labels and prescribing the mention of use-by dates played into their hand. Nowadays there are more than thirty

companies engaged in inkjet technology in the region – including Xennia. This company is, however, unique, with its scientific and other expertise and the fact that it offers all the modules required for inkjet technology.
The managing director is delighted with TenCate's involvement in the development of digital inkjet technology. The fact that TenCate is a company in technical textiles means that it is primarily interested in textile applications, even though numerous other opportunities and markets are emerging. 'TenCate is encouraging us to focus on for example textile printing and industrial decoration.'

One-stop shop

Alan Hudd realizes that market penetration of this new technology will be gradual, even though there is enormous interest in it. Interest within TenCate too has in a short time become much greater than was first expected - especially from the Geosynthetics and Aerospace Composites market groups, which is encouraging, although this is a long-term process. First of all, applications in the field of protective fabrics will be further developed. Of course, he realizes that the competition does not stand still, Major players are active in this market, but Xennia has a great deal of complementary knowledge and is able to switch rapidly. It currently offers all the required competencies (one-stop shop), like inks, modules and R&D. 'We are operating from a position of luxury: the companies that are interested come to us. Our customers see to the financing of our R&D projects because we are able to provide customized solutions. These solutions will ensure our "installed base" in due course.'

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Inkjet technolog

On 18 February Xennia Technology played host to some thirty investors, analysts and journalists from the United Kingdom, the US and the Netherlands at its operations in Letchworth (UK). The programme included presentations, a look behind the scenes of digital inkjet technology and the unveiling of the process demonstration model for the digital printing and finishing of textile and other materials.

Gerrit Koele (Xennia) explains how the process demonstration model works

y for investors

Some thirty investors and analysts from the Netherlands, the United Kingdom and the US paid a visit to the company on 18 February. First there were presentations: about inkjet technology, how it links up to our business model and its significance from an IR point of view, with specific emphasis on added value which Xennia has for future developments.

In the afternoon the guided tour took the visitors through the laboratory, the development departments and past the new process demonstration model. Together theory and practice produced a good picture of what the new technology is capable of and what it means for the potential of TenCate, as can also be seen from the reactions of the guests.

'Through thick and thin'

Willem Burgers (fund manager at Add Value Fund) has been following TenCate since 1982, Tom Muller (senior analyst at Theodoor Gilissen Bankiers) for 25 years – 'through thick and thin'. Tom Muller has been providing positive recommendations about TenCate for a number of years, based on its portfolio 'with state-of-the-art products which can continue in their markets for many a long year yet'. The company, he believes, has strong market positions that will lead to attractive margins. 'This long-term outlook based on its available potential continues to appeal to shareholders.' Willem Burgers has seen the company undergo a metamorphosis 'from industrial conglomerate to a fully focused and specialist technical and other textiles group. The presentation on 18 February marked the start of a new chapter in TenCate's history. Xennia's expertise and potential, based on the projections announced, represents a significant strengthening of the TenCate business model'.

Going down well

Both the presentation of Xennia's business model in relation to TenCate and the presentation of the machines in operation – including software and inks – went down well. 'The potential is obvious, Tom Muller feels. 'The degree of professionalism at Xennia gives one a good feeling about the involvement of the company and its employees in its products.'

New market opportunities will be created as a result of this technological development. 'The technology can lead to a strong and attractive market position in a variety of major areas of application. If you want to supply components and inks, new machines will have to be brought in and customers should invest in them. The transformation to digital production processes will therefore be gradual, but 'the patented technology gives you confidence. I'm pretty sure that large companies will be using this in due course.'

The comments and opinions of the visitors proved that these developments are regarded with great confidence. Of course, the process is still in its infancy, but through Xennia TenCate has acquired state-of-the-art know-how.

Picture

All in all, the day provided a clear picture of Xennia and its potential. 'When it comes to giving a four- or five-year profit estimate, I'm factoring in higher revenue from this unit', is Tom Muller's opinion. 'I am, however, basing my opinion on the group, and I hope and expect that its innovative character will continue to produce new products and technologies now and then in the coming years.' Willem Burgers has at any rate become even more aware of 'the upward potential of investment in TenCate'.

It is now up to us as company to live up to these positive expectations. We should, however, point out that, although there is great confidence as regards this technology, the time when we shall be able to speak of a real breakthrough, involving large volumes of sales, remains an uncertainty, which depends on a number of other factors. We can at any rate state that, judging from the feelings of most of the investors, there must be a more positive investment climate.

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Cash man flexibility

'In the year 2008 we were already factoring in modest economic growth, as a result of which investments in that year were considerably reduced. In 2009 these were once again very substantially cut back when it appeared that that year was possibly going to be an annus horribilis. We immediately switched over to a cash management model instead of a profit-generating one. When profit unexpectedly came under great pressure, several problem areas loomed up ahead of us relating to the bank covenants. These are the preconditions on which banks lend money to a company, including the debt/EBITDA ratio.

We were suddenly forced by circumstances to reduce our working capital and our costs to as low a level as possible. Very many employees, managers and directors worldwide have been intensively pursuing this cash management policy – and successfully too. The debt to the banks was reduced by €136 million, while the operational cash flow amounted to €145 million. This is an improvement of 200%!

Net profit, however, amounted to €23.9 million, which is approximately 50% less than last year (2008). It should be pointed out here that we incurred substantial (exceptional) costs for 2009 (€11 million).

The cause of all this was the unexpectedly large decline in demand in a sizeable share of the markets in which TenCate operates, which was in fact of an unprecedented magnitude. This decline was moreover reinforced by the significant scaling down of the volume of work in hand in production chains as a result of tight financial conditions. TenCate has been more affected by the tight financial conditions experienced by government agencies and industrial customers than by the structural decline in demand. After all, TenCate products and systems respond to general worldwide trends, which offer healthy prospects in the longer term. This is furthermore supported by the fact that a great deal of our attention is required for the theme of sustainability.

nagement and
in the cost structure

The positioning of TenCate in these markets has not been affected and has even been enhanced in subsegments. What was especially noteworthy in 2009 was the strength of a number of product champions, such as TenCate Defender™ M, which has become a household name to the American military, or TenCate Cetex®. These are TenCate products that are unique and are seen as a standard, even in times of recession. Many other products will acquire this status in due course. They are at any rate very promising, like the synthetic turf fibres Evolution or TenCate Tapeslide™ XP or TenCate Tecasafe™ Plus, a recently introduced protective fabric for American industry.

A number of important milestones were achieved in the field of technology. The weaving of high-grade synthetic turf constructions was successfully accomplished and digital finishing (Xennia Technologies) showed major advances in the commercial field. The latter is an important vehicle towards the future for TenCate.

The year 2009 has made something else clear. The Dutch companies turned out to have difficulties in being able to adapt and adjust to lower revenue levels. Their flexibility in production and costs plainly lagged behind the foreign TenCate companies and this will have to improve. That much is very evident.

The outlook for the year 2010 is for modest economic growth, so we must keep our finger on the pulse. A number of restructuring measures will be implemented in 2010, the costs of which have been in part recorded in the books for 2009. Flexible cost-effective production has been created at the two TenCate Grass companies in the Netherlands, from which we shall be able to reap the benefits. Other Dutch business units are now either in the process of reorganizing or have already done so. Without meaning to be derogatory towards the other activities, it is fitting to mention here that TenCate Geosynthetics Europa have put in a considerable effort under difficult circumstances and produced a fine result.

The year 2010 will thus be dominated by greater flexibility of costs and cost-effectiveness, particularly in the Netherlands. In addition, the policy will be pursued to ensure that TenCate in the Netherlands concentrates on high-grade products, production or technologies. This is a matter of phasing out and phasing in, which requires time.

In the year 2009 we achieved an adequate and, in view of the circumstances, satisfying result. This is, however, not enough, despite the fact that we performed well. If we continue to put in a good performance, this will eventually lead again to profit growth like that which we have shown over the past ten years.'

Loek de Vries, President and CEO

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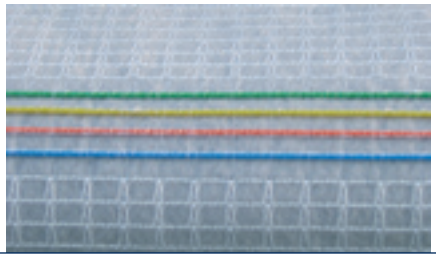
TENCATE GEODETECT® INTRODUCED IN NORTH AMERICA



Intelligent dyke monitoring

MARKET – Civil engineering. **PRODUCT** - Geotextile incorporating sensors. **TECHNOLOGY** - Extrusion and weaving technology, followed by coating and sensor technology. **PROCESS** – Fibre optics are incorporated into geotextiles and connected to measuring equipment.

After Europe, TenCate Geosynthetics is now focusing on the market introduction and sale of TenCate GeoDetect® in North America. An international team is responsible for coordinating marketing efforts and further development of the system. The monitoring system, based on the world's first 'intelligent' geotextile, is being sold directly to decision-makers.

TenCate Geodetect® is a system for monitoring earth structures like embankments and dykes for deformation. It incorporates a geotextile fabric, fibre optics, special instrumentation equipment and software. This provides an early warning indication of the slightest ground deformation and of any changes in temperature and strain, making it possible to take measures for example to prevent a breach. The system has been tested in existing dyke bodies and is used during the construction of roads and railways and the building of retaining walls, tunnels, underground structures and pipelines.

Testing ground

TenCate GeoDetect® was developed in Europe and has been used in experimental projects. TenCate Geosynthetics has been involved in the IJkdijk project in the Netherlands since it began in 2005. The IJkdijk is an international testing ground for new inspection and monitoring techniques for water retaining structures. Monitoring with the use of integrated sensors provides our fabrics, composites and synthetic turf with a new functionality. The synthetic turf pitch in the Polman Stadium in Almelo (NL) for example is equipped with sensors. These register the number of hours played, the load at specific areas of the pitch and differences in temperature, as well as processing maintenance data.

System solutions

The introduction of TenCate Geodetect® in the US has enabled worldwide marketing efforts in geotechnology to be coordinated. Further development of the system will also be intensified, and to this end an international team has been formed, headed by Wilson Harvie, who is responsible for Global Business Development for TenCate GeoDetect® within TenCate Geosynthetics. Initially, the team will concentrate on commercialization in North America, South America, Europe and the Middle East. The key areas of focus are roads and railways, retaining walls and dykes, canals and basins as well as waste dumps. 'By combining proven fibre optic sensing technology with the performance of geotextiles, TenCate Geosynthetics has been able to introduce the most accurate, customizable and cost-effective monitoring system that is currently available', explains Wilson Harvie. 'It is an example of the commitment of TenCate Geosynthetics to provide the complete system solution to complex geotechnical challenges.

Advantage

Wilson Harvie firmly believes that over time all geotextiles used in critical earth structures will have a sensoring requirement. Being the first company to offer this technology will be a significant advantage to TenCate Geosynthetics and will facilitate sales of existing geotextiles in the current project. To date, other companies have attempted to integrate fibre optics into geotextile fabrics, but have not been successful. 'For the time being this remains a trade secret between our partner and TenCate Geosynthetics.'

What about sustainability? Material use and energy consumption play a decisive role in the design and construction. By incorporating TenCate GeoDetect® the carbon footprint can be considerably reduced.

- **TenCate GeoDetect® can provide early warning of deformation for example in embankments and dykes.**
- **Installation of the system means a sustainable solution and savings in material use and energy consumption.**
- **'TenCate GeoDetect® is the most accurate, customizable and cost-effective monitoring system currently available.'**

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Kappl is avalanche-proof

Imagine that you want to protect a popular ski resort in the Tyrol (Austria) against avalanches but the natural conditions of this mountainous area rule out traditional solutions. In addition, the barrier has to fit appropriately into this landscape. Well then you opt for a solution with a system based on reinforced geosynthetics, such as TenCate Polyslope® S. The barrier near Dias Alpe is proof of this.

The avalanche barrier near Dias Alpe is perhaps the largest barrier in the world that avalanches can encounter on their way down. The barrier is situated 2,200 metres above sea level and guards the village of Kappl against all too powerful masses of snow. The barrier was contructed using natural materials that are available locally. TenCate Polyslope® S is an environment-friendly and attractively priced system for constructing retaining walls. It consists of three components: geosynthetics for reinforcement (TenCate Polyfelt®), erosion protection using fibre glass, and steel formwork (TenCate Miragrid®). The mountains around Kappl are funnel-shaped, which virtually guides avalanches directly towards the village. Due to the natural conditions of the area, it is not possible to install protection at the top of the mountain, and protection nearer the village provides just as little relief: at this stage avalanches already have too much mass and kinetic energy. This is the reason for constructing a barrier at a level where it will break up the avalanche before it has reached its highest speed and force. The length of the barrier is 600 metres and it is 25 metres high. Some 400,000 m^3 of soil had to be moved and 285,000 m^2 of geosynthetics were required.

The idea behind this system is that the area will become entirely covered in vegetation. In view of the fact that thriving plant growth cannot be guaranteed at 2,200 metres, it was decided to use galvanized frames, which will help to provide a longer time for growth to become established. These geogrids are folded back over the layer above, which provides extra safety when such dynamic forces are at play.

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MARKET - environmental and infrastructure projects **PRODUCT** – TenCate Polyslope® S (TenCate Polyfelt® Rock, TenCate Polyfelt® Green and TenCate Miragrid® **TECHNOLOGY** – system was adapted to local conditions and installed on site. **PROCESS** – contractor, owner and TenCate worked together during construction.

Revitalizing Canal do Fundão

With an eye to the 2014 World Cup and the 2016 Games in Rio de Janeiro, 2.1 million cubic metres of partly contaminated sludge must be removed from two canals. This sludge is to be safely stored in three storage and dewatering zones built using TenCate Geotube® technology, and the zones will then be landscaped as parkland. In this way Rio as welcoming city is demonstrating its commitment to ensuring a clean environment.

Tom Stephens (left) and others showing Sergio Cabral (governor of Rio de Janeiro) the difference between contaminated water and water filtered by TenCate Geotube®

Photo right: The polluted canal

As host during the World Cup in 2014 and the Olympic and Paralympic Games in 2016, Rio de Janeiro is keen to make a good impression. So the city considers the revitalization of the polluted Canal do Fundão to be of great importance. It is difficult for those travelling from Antonio Carlos Jobim International Airport into the city to miss this canal and the adjacent Canal Cunha. Petrochemical waste has contaminated the Canal do Fundão over the years and now this clogged waterway is not only an eyesore but also emits a terrible odour. Still, all this will be history in four years' time. By then the 6.5km canal will have been dredged and the water circulation and wastewater purification restored. After this, various other improvements to the urban infrastructure will be realized.

Solution

TenCate Geotube® is to play an important role in this project. This technology has been selected as an effective and economical containment and dewatering solution. A sediment layer containing heavy metals will be stored in TenCate Geotube® and, following the dewatering process, the filtered water will be returned to the adjoining bay – Guanabara Bay. Storage and dewatering are to take place in specially designated TenCate Geotube® zones on unused ground of the city's university. The dewatering zone (or cell) is being built on the basis of TenCate grids and non-wovens, which are strong enough to safely carry the load of four layers of filled TenCate Geotube® units.

When operations have been completed, the tubes will be entombed and a park created on each of the three. So entry to the city centre will be green in more ways than one!

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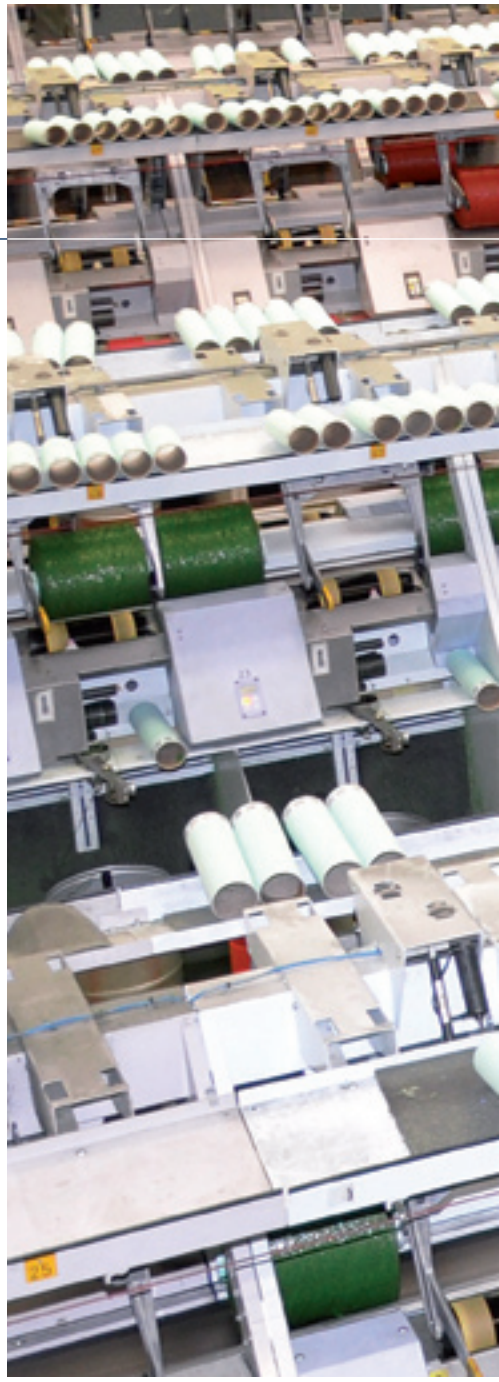
The first layer with TenCate Geotube® containers in the first cell. Eventually there will be 120 containers of 36.5 meters circumference x 61.0 meters long.

Process optimization leads to smarter methods of working

The TenCate Grass plant in Nijverdal has been rationalized. Headed by Erik Vogt (director TenCate Grass Europe), the operation involved the machinery layout, the logistics concept, stock management and manpower. The change means a clear improvement in more than one respect and, what's more, the company has given substance to the two internal cornerstones of the TenCate business model: cost leadership and innovation. So process optimization, to create a sound company with a future and make the difference for customers.



Production detail (twining lines)

Because of a slight drop in market demand and in order to restore profitability, the Nijverdal plant of the Grass group has been rationalized. The TenCate Grass group has three production locations: Dubai, Dayton (USA) and Nijverdal. Dubai focuses chiefly on large volumes and commodity products, while Nijverdal and Dayton focus more on flexibility and specialties. The role of Nijverdal has changed and the company is now in the last phase of process optimalization. The production process has been accommodated in one hall and arranged more efficiently; the working capital has been reduced and the logistics process adjusted; and the number of jobs – from managers to operators – has been cut. All in all the production company has become smaller and more flexible, facilitating a much better response to customer demand. Seeing that Europe has the most customers, flexibility is a must from the geographical perspective. 'We focus directly on customer demand, tailoring our production accordingly. Furthermore innovation is of paramount importance, and here you can also think of product renewal and process optimalization. It has become a different kind of company: smaller, more flexible and more innovative.'

'Fixing the curl'

The entire production – compounding, extruding, twining and twisting ('fixing the curl') – is carried out in one hall, and here some millions of kilos of grass yarn are produced annually on five tape and five monofilament lines. Packing and internal transport have been fully automated by deploying AGVs (automatic guided vehicles), releasing the operators for broader tasking. In the new situation they have to become all-rounders and master a number of steps in the production process. Training is being provided for this purpose. Personnel are also exchanged with TenCate Thiobac (backing for synthetic grass). The two companies have already been working together fot two years in such areas as sales, logistics, finance and production. Furthermore, since 2009 flexible teams for extrusion, twining and weaving have been used during peaks in the production process, and some employees can be deployed in both companies. This cooperation will be extended further.

Confidence
The change process has been carried out in the low season, when 'only' half the production capacity needs to be used. Consequently production as such has suffered only limited disruption. Needless to say, the investment not only demonstrates but also inspires confidence. The workers recognize the necessity for the intervention, as well as its benefits. 'We see the future in a positive light and really want to succeed.'

The storage space of 25,000 m² in Gildehaus (Germany), 65 km to the east, will be vacated, since fewer square metres will now suffice. In Almelo a new hall has been brought into service and divided into compartments – a compulsory procedure because of the high fire risk linked to synthetic turf. In addition the former production hall in Nijverdal will be used for storage purposes until and throughout the high season. Manufacturing used to be for stock but now there is a division between commodities and specialties: the former produced for stock, the latter produced to order. All the logistics, which used to be partly outsourced, are now in the company's own hands.

- **Rationalisation of machinery layout, the logistics concept, stock management and manpower leads to process optimization.**
- **Tailoring production according to customer demand creates clarity and flexibility.**

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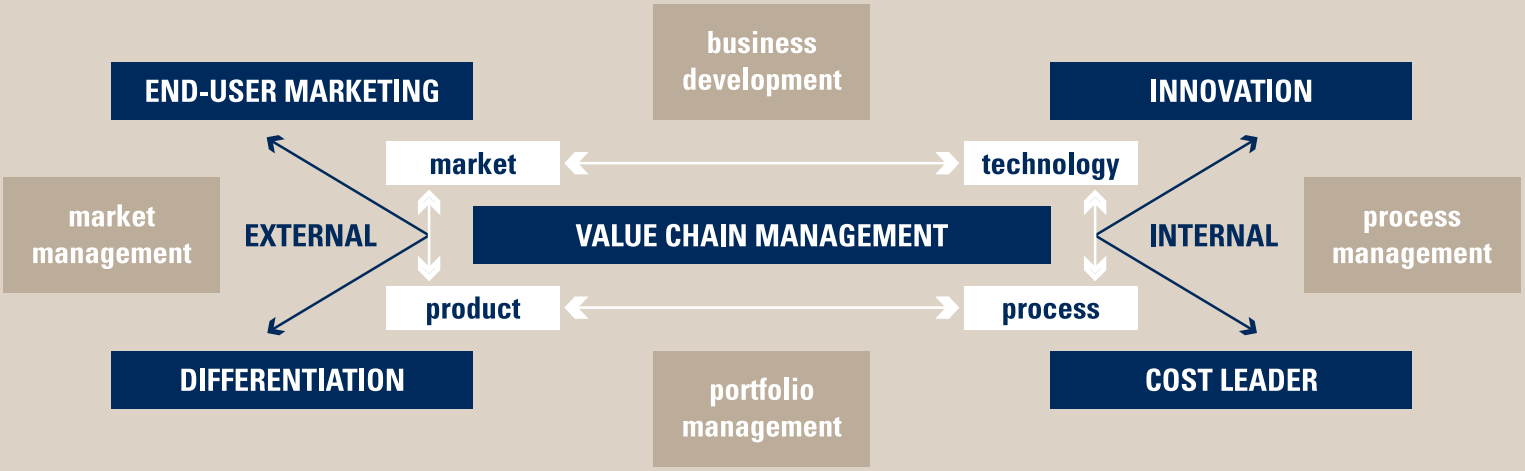
Guided by worldwi



TenCate implements its strategy based on the "Value Chain Management Model" that it has propagated. This consists of four cornerstones:

- **end-user marketing (and an industrial intellectual property policy)**
- **product differentiation (focusing on specific applications and customer requirements)**
- **cost leadership**
- **technological innovation**

Value chain management helps create added value within the chain because, firstly, it is guided by a strong and distinctive position in the chain and, secondly, it gives a central role to the requirements of the end customer (although this does not necessarily have to be a direct relationship with the customer). It is an approach that is entirely different from classic supply chain management, in which the logistical process has a more prominent place.

de value chains


Technology is the driver within TenCate

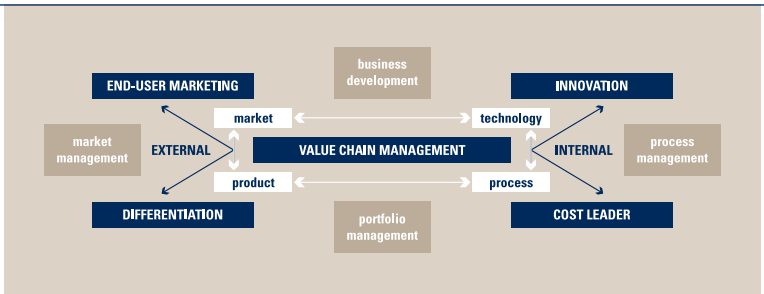
End-user marketing
TenCate seeks to know what motivates end-users and what their needs are. This does not mean that we deal with them directly, although we do need to be connected. In our 2009 annual report we give a number of examples of this.

TenCate informs the end-user as well as the direct customer (business to business) in a variety of ways of the possibilities available. We try for example to exert influence on the specifications, quality criteria and /or functional requirements made by end-users. Here it is not about 'pushing' products onto the market, but ensuring that the end-user asks for our materials: specifying or standardizing the product to the right people or agencies. This goes hand in hand with a marketing strategy that increases the visibility of our products in the market. Functional characteristics are clearly communicated by our branding policy. Nowadays, the fact that a product is 'exceptional' can scarcely any longer be called a competitive advantage. A unique product and strong image can, however, not be imitated. Ultimately, the best possible situation is that a product becomes the standard in a particular market segment, such as TenCate Defender™ M (flame-resistant protection for US Army uniforms).

An important step in end-user marketing is collaboration with partners. One example of this is the collaboration with the company Roctest (Smartec) in the field of monitoring systems using geotextiles (TenCate Geodetect®).

Product differentiation
For many years TenCate has been known as a development partner for functional materials. TenCate is constantly working on launching new products and systems and on the development of new applications for its materials. Markets change, requirements become more demanding, legislation changes and standards become ever more exacting. These are significant reasons for adapting functional characteristics or for incorporating them into materials and systems. The well-known product life cycle forces companies to launch new products and systems time and again. In the case of TenCate these must be meaningful, functional developments.

TENCATE BUSINESS MODEL FORMS FRAMEWORK FOR VALUE CHAIN MANAGEMENT



Cost leadership

The company must remain continually alert in dealing with costs, and also with cost-based methods of production, its margin policy, the handling of processes more smartly, the organizing of logistical flows, the reduction of energy consumption and environmental costs, etc. Thanks to its balanced product portfolio, TenCate is able to create a certain equilibrium between volume production (cost leadership) and product differentiation (specialities). In part due to the trend towards ever shorter product life cycles, TenCate will continue to produce a part of its product portfolio for volume markets. These products will, however, have to meet the high quality criteria that TenCate aspires to. You can achieve cost advantages through greater internal cooperation, for instance in the fields of purchasing and IT. Coordination of the various worldwide production facilities is also an important management tool for keeping costs under control. The management of working capital is also a key area of attention. As mentioned elsewhere, these developments can currently be seen within the TenCate Grass group.

Technological innovation

Technology is the driver within TenCate, where textile technology, material technology and chemical technology combine to form material science. If a manufacturing industry is to survive in the longer term, it must be innovative – and remain so. TenCate aims to be at the cutting edge of technology. The development and production of advanced materials with specific functional characteristics and high quality require advanced production facilities. Pioneering technological innovation is thus vital for safeguarding our future. It is essential to further develop existing products using technological innovation or to raise new products to a technologically higher level. Acquisitions (buy & build) too enable technological positions to be strengthened. In this connection TenCate is constantly investigating product-market-technology combinations and is searching for the missing technological links in order to strengthen the entire organization.

In line with each other

In our business model, product differentiation and cost leadership are in line with each other. In the field of cost control and product differentiation especially they are complementary. A focus exclusively on costs will result in little product differentiation and a focus on a differentiated product range will lead to less efficient production (small runs, the costs of resetting machinery, extra working capital). You can regard cost leadership as the last line of defence. If you are not engaged in pioneering innovation, you are doomed to lose out. Product differentiation serves – together with the other two cornerstones - as a marketing offensive.

As a company you will constantly have to strike a balance between all the cornerstones. The precondition for achieving a good balance between differentiation and cost leadership is a flexible organization. It is important to continue to link 'effectiveness' (doing the right things) with 'efficiency' (doing things right) in daily practice.

Being complementary also applies to end-user marketing and technological innovation. The higher the added value, the sooner customers will discover how unique the products and solutions are that TenCate offers.

Model as means of communication

Although at first sight this approach may appear theoretical, experience has shown that this management model works for TenCate. It also provides a good medium for the communication of the strategy internally.

Externally too the model serves as an explanation of strategic decisions taken and it is an instrument on which corporate communication can be based. The model stands out in a positive sense in this area: our stakeholders have considered our annual report to be extremely transparent on this point in the past few years.
Of course, we also continue to make efforts to communicate to the market the unique character of our products and systems.
End-user marketing remains a continuing area of attention.

MARKET – Construction, environment and infrastructure (particularly civil engineering). **PRODUCT** – Three qualities of TenCate Mirafi® HS/PP woven geotextile. **TECHNOLOGY** – Weaving and coating technology. **PROCESS** – Installation on site.

The retaining wall after construction

The wall, now completely covered in vegetation

TenCate Mirafi® on the slope

A ballpark had to be designed and built for the Gwinnett Braves in Lawrenceville (Georgia) to accommodate 10,200 spectators. Naturally mission accomplished – thanks in part to the application of TenCate Mirafi® HS/PP in the construction of 9m to 12m high retaining walls. TenCate Mirafi® HS/PP are high-strength woven geotextiles based on polyester and polypropylene fibres – so extremely strong and endowed with excellent cohesive characteristics. TenCate Geosynthetics Pendergrass could deliver them quickly, and the design team from Wall Technologies Co. supplied the structural solution. To meet the challenging deadline, the teams worked in shifts to install on average 110 m² of wall per day.

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TenCate Grass at international synthetic turf conference

Vienna was the setting for the fourth Grass Yarn & Tufters Forum held from 9 to 11 February 2010. Here participants were able to get to grips with trends and developments in the synthetic turf market – so a must for tufters and suppliers of synthetic turf components and systems. More than 170 delegates from companies and government authorities in Europe, the Middle East, Asia and North and South America were present, among them Antoine Engels (senior sales manager) and Frans Harmeling (product & development director) from TenCate Grass, who both gave presentations.

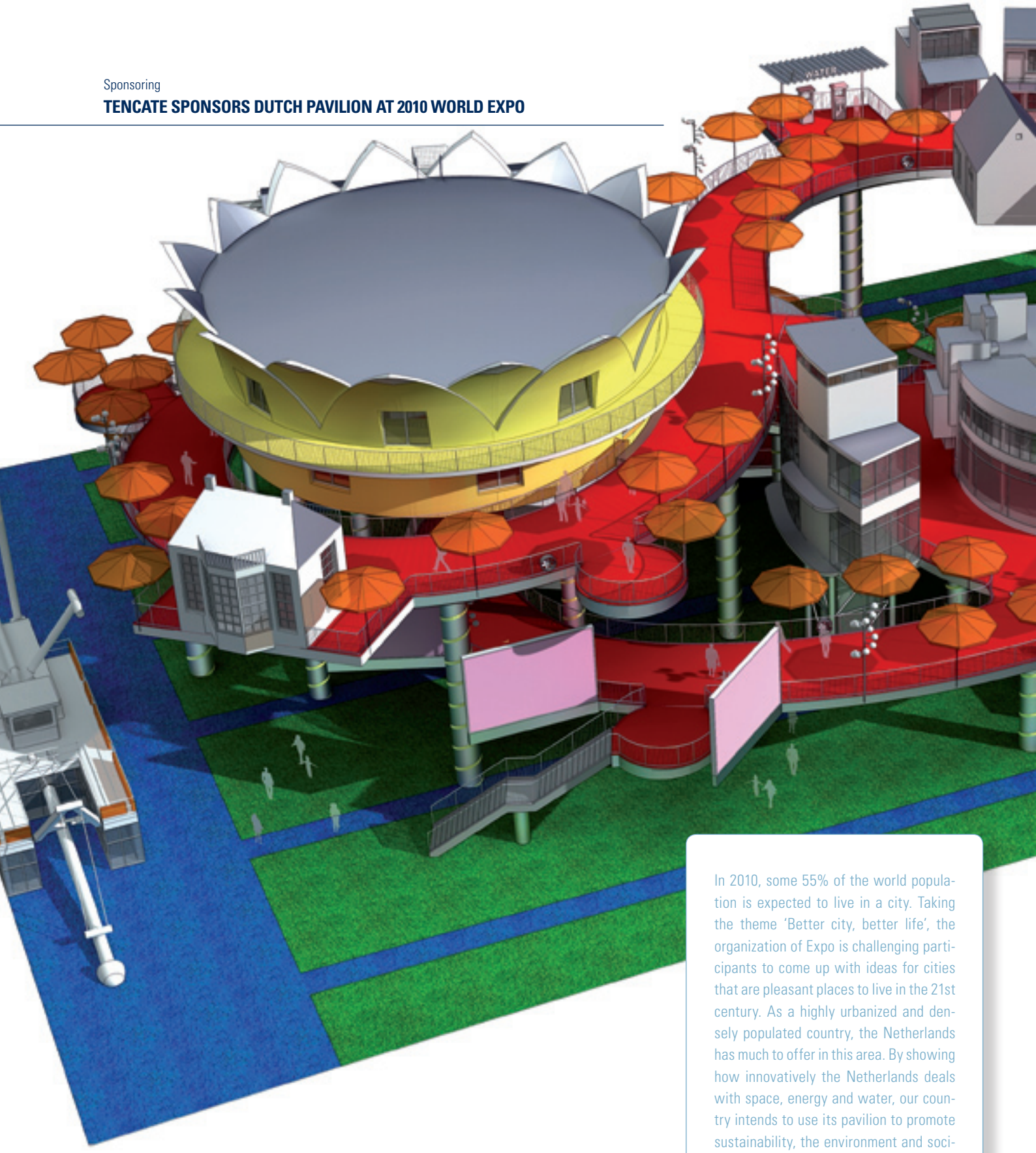
The synthetic turf industry has seen steady growth over the last five years, despite a short-term weakness. Growth figures and technological developments make synthetic turf a dynamic industry. The prospects are good, but the challenges are sometimes formidable and the chance of consolidation is real. Speakers from various international organizations and companies, including FIFA, apprised those present of the perspectives concerning sports needs, developments in synthetic turf components, testing and standards.

Backing solutions

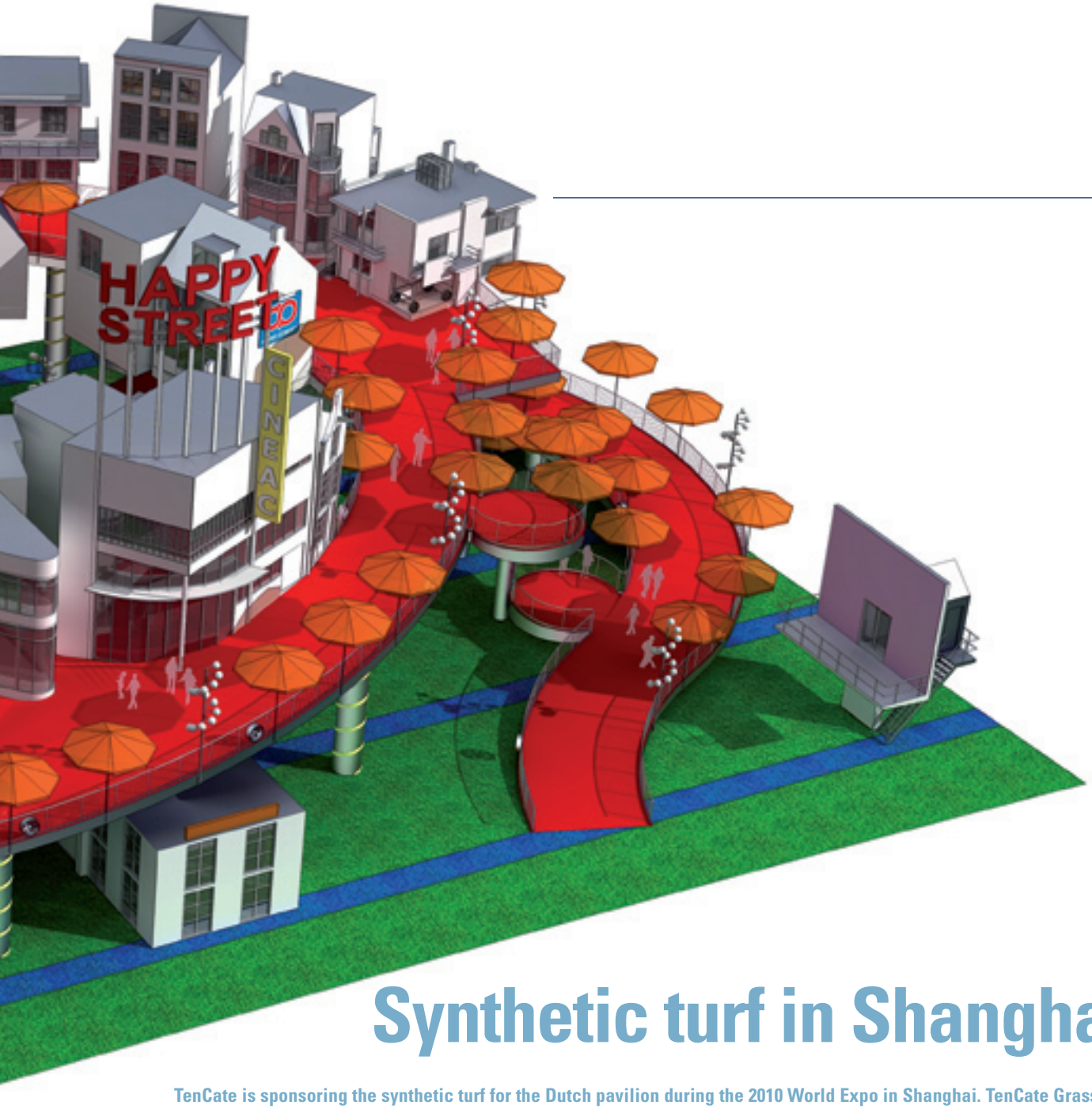
Antoine Engels spoke to the delegates about the significant advantages that our backing solutions provide for synthetic turf. Although invisible, they perform a stabilizing role in synthetic turf systems. Intensive research and a constant focus on customer wishes have resulted in a new generation of multilayer backing products for synthetic grass systems. And in this respect TenCate continues to set the standard. Frans Harmeling gave a presentation on creating end-user value through innovation and warranty. TenCate has recently introduced two warranty concepts to this end: the TenCate Performance Warranty™ that aims to safeguard the quality and durability of football fields, and the XP Warranty™ that offers a guarantee on the life span of fields subjected to intensive use.

Sponsoring

TENCATE SPONSORS DUTCH PAVILION AT 2010 WORLD EXPO



In 2010, some 55% of the world population is expected to live in a city. Taking the theme 'Better city, better life', the organization of Expo is challenging participants to come up with ideas for cities that are pleasant places to live in the 21st century. As a highly urbanized and densely populated country, the Netherlands has much to offer in this area. By showing how innovatively the Netherlands deals with space, energy and water, our country intends to use its pavilion to promote sustainability, the environment and socially responsible behaviour.



Synthetic turf in Shanghai

TenCate is sponsoring the synthetic turf for the Dutch pavilion during the 2010 World Expo in Shanghai. TenCate Grass has built up a leading position in the Asian synthetic turf market in recent years. This market is characterized by continuous growth that is boosted by a growing number of new users and an increased preference for synthetic turf.

The Dutch Happy Street pavilion has been built like a mini Dutch city along a 'floating' street in the shape of the Chinese lucky number eight. The synthetic turf from TenCate Grass - in the colours grass green and water blue – has been installed under the pavilion. The synthetic turf is made of TenCate Tapeslide XP™ fibre, a durable and wear-resistant grass fibre. This modern version of the open Dutch landscape, together with the pavilion, was designed by the artist John Körmeling. The World Expo will open in May. TenCate Grass is supplying the synthetic turf fibres and backing.

TenCate has long been operating successfully on the Chinese synthetic turf market and special TenCate Grass synthetic turf fibres have been used for a number of major events. The synthetic turf hockey pitch used during the Olympic Games in Beijing (2008) for example and for the National Flag Guard in the Forbidden City in Beijing in 2009. And at the end of 2009 the hockey matches played during the East Asia Games in Hong Kong were on pitches made of materials from TenCate Grass.

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Distinction in the recreation market

A new house style, a glossy brochure, a renovated website, own showcards, banners and labels – all part and parcel of the end-user approach that has been followed by TenCate Outdoor Fabrics for quite some time now. The new house style and the new promotional materials were recently presented to dealers at the Caravana exhibition.

Herman Klompenmaker with Roel Reineman and Dick Zwarts of Isabella Nederland, TenCate Outdoor Fabrics' biggest tent cloth customer

Nearly all the manufacturers incorporate TenCate fabrics in their tents. And for those major players who wish to distinguish themselves from other manufacturers, TenCate Outdoor Fabrics develops specific weaving patterns and wall qualities, with the TenCate All Season Design Line serving as the basis. These qualities are made from polyvinyl alcohol (PVA) fibre in combination with polyester. Just like cotton, PVA absorbs moisture and thus delays the onset of condensation, while the polyester fibre ensures high tensile strength. The microporous coating makes the fabric waterproof, weather-resistant and durable.

Co-branding

TenCate Outdoor Fabrics trained dealers (tent sellers) on their own premises, transforming them into tent cloth specialists. Now anyone venturing into a tent shop can see on the outside that inside a TenCate tent cloth specialist is on hand. The label TenCate Materialized™ gives information on the TenCate fabrics applied and explains to the consumer that the tent cloth in an end-product has been produced by TenCate Outdoor Fabrics. Through co-branding, TenCate Outdoor Fabrics couples its good name with that of the manufacturer. Greater use will be made of pictogrammes so that the dealer and end-user can sum up the tent cloth characteristics at a glance. The new house style has also filtered through to the showcards and the brochure Tips and information. And what's more, there's an informative audiovisual resource for use in the dealer's showroom.

- **TenCate Outdoor Fabrics shows dealers new house style and promotional materials.**
- **End-usermarketing implemented in brochures, images and audiovisual.**

www.tencateoutdoorfabrics.com
outdoorfabrics.europe@tencate.com

MARKET – Recreation. **PRODUCT** – TenCate tent cloth based on PVA and polyester fibre and label TenCate Materialized. **TECHNOLOGY** – Weaving and finishing technology. **PROCESS** – Tent cloth is processed in tent/awning by manufacturer.

Nomination Supervisory Board

During the Annual General Meeting of Shareholders on Thursday 8 April 2010 in Almelo, the Netherlands, the Supervisory Board of Royal Ten Cate will propose Mr R. van Gelder to the Meeting of Shareholders for appointment as a member of the Supervisory Board.


Mr R. van Gelder

Mr Van Gelder (civil engineer, aged 64, of Dutch nationality) is a former CEO of Royal Boskalis Westminster (1993-2006) and currently CEO of Heijmans N.V. (until May 2010). He is a supervisory board member of SBM Offshore N.V. and Holcim Western Europe Ltd. and a member of the board of the Vereniging Effecten Uitgevende Ondernemingen (Association of Securities-Issuing Companies). The Supervisory Board is of the opinion that, in the light of the profile of the members of the Board, Mr Van Gelder's knowledge and experience is complementary to that of the other members. Mr Van Gelder will be of great value to Royal Ten Cate, particularly in the field of international engineering and contracting projects. Further, during the Annual General Meeting of Shareholders on Thursday 8 April 2010 in Almelo, the Netherlands, the Supervisory Board of Royal Ten Cate will propose Mr P.P.A.I. Deiters to the Meeting of Shareholders for reappointment for a fourth term of four years as a member of the Supervisory Board. Mr Deiters' contribution continues to be of great value to Royal Ten Cate.

Cooperation TenCate Geosynthetics and Roctest

The world's largest manufacturer of fiber optic sensors for civil engineering applications and the world's leading provider of geosynthetics are collaborating in the development of a unique geotextile monitoring solution – TenCate GeoDetect® – that will provide unprecedented detail about the properties of embankments, slopes, walls, levees, roads, rails and other earth structures.

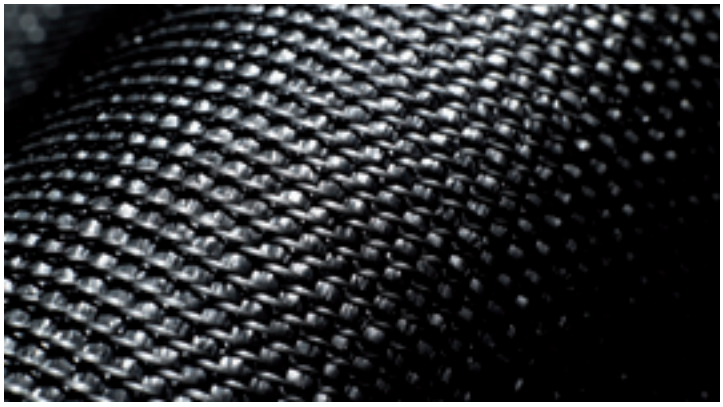
TenCate Geosynthetics has a global reputation for innovative products and solutions for complex civil engineering and geotechnical problems while Roctest / SMARTEC provides expertise and innovation in data acquisition devices, instrumentation equipment and software.

IN TXTURES 2 WE WILL BE FOCUSING ATTENTION ON SUCH ITEMS AS:

INFRASTRUCTURE & ENVIRONMENT

Theme: TenCate geosynthetics

How are they made, what are they used for and in what ways do they make a difference? We took a look at the development, production and use of these materials and systems, charted the varied landscape of geosynthetics and spoke to those involved – from developer right through to end-user.



Results from the first quarter of 2010

On 4 May TenCate published the figures for the first three months of this year. An overview in facts and figures.

The TenCate brand

TenCate is ranked 46th in the Top 50 of stock exchange-listed Dutch companies with the most valuable brands. The value of the corporate brand is estimated at 83 million Euros. What is known as the brand rating has been fixed at A+ (extra strong). txtures spoke to people from Brand Finance, the firm that compiled the ranking.

IS IT JUST CUSTOMARY RITUAL OR A SERIOUS SHOWDOWN?

The Royal Ten Cate Annual General Meeting of Shareholders

txtures was in attendance on 8 April, when, in the presence of shareholders, the Executive Board and the Supervisory Board of TenCate gave a detailed explanation of the policy they had conducted, the results achieved in 2009 as well as the outlook for 2010. Afterwards we spoke to the directors and to members of the audience about the meeting, including the theme 'Connected'.

Presentation of the JEC 2010 Awards

On 13 April the Head of Research & Technology, Robert Lenferink, received the prestigious JEC 2010 Award in the Aeronautics category on behalf of TenCate Aerospace Composites, together with commercial partners such as Fokker Aerostructures. The award was made based on our supply of cost-effective composite materials for the new Gulfstream G650.The lightweight G650 elevators and rudders in the tailplane consist of an induction-welded multi-rib/skin structure. Experts from TenCate and Fokker Aerostructures explained to us what is so innovative about this technology and these materials.

COLOFON

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txtures is a corporate review of Royal Ten Cate for its own employees and external stakeholders. The magazine is published four times a year in a Dutch and English version. Reproduction of articles or parts of articles is authorized, providing the source is acknowledged and that passages and quotations are not placed in a different context.

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