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Mines de Douai
LILLE EUROREGION

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TEXCOMP 10th EDITION

LILLE GRAND PALAIS, FROM OCTOBER 25 TO 29, 2010

PRESS

For all information in real time: www.texcomp10.com

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TEXCOMP 10, OCTOBER 25-29

INTERNATIONAL CONFERENCE ON TEXTILE COMPOSITES IN LILLE

Transport, aeronautics, automobile, civil engineering, medical, telecommunications, sports material and equipment, all of these industrial sectors call for technical processes using textile composites.

The stakes of **TEXCOMP10** are to make the advances made in the field of textile composites known the world over. The scientists and companies developing projects in diverse areas will indicate their state of progress through discussions, forums and publications.
The tenth International Conference on Textile Composites **TEXCOMP10** will be held at Lille Grand Palais from October 25 to 29, 2010.

Program

- **Monday, October 25**: **Master Class**

Master Class for students (Masters, Doctorate level) and professionals, with courses provided by international researchers, all experts in the field of textile composites

- **From Tuesday, October 26 to Thursday, October 28**: **Conference**

Plenary and **theme-based lectures** for researchers, presented by researchers from all over the world

- **Friday, October 29**: **Business Seminar**

Professional Day for industrial companies, devoted to the industrial applications of textile composites

For all information in real time: www.texcomp10.com

Following its 2008 edition in Delaware (North America), it was time for the Conference, also after rotating with Asia, to come to Europe.

For the first time it will be in France.

This testifies to the Nord-Pas de Calais Region's research potential in the realm of textile composites, and more globally, technical textiles.

TEXCOMP10 OVERALL PROGRAM

Monday October 25: Master Class.

Master Class for students (Masters, Doctorate level) and professionals, with courses provided by international researchers, all experts in the field of textile composites

From Tuesday, October 26 to Thursday, October 28: International Scientific Conference

Plenary and theme-based lectures for researchers, presented by researchers from all over the world (about 65 lectures)

- Session 1 : Mechanical design and modeling
- Session 2 : Advanced manufacturing processes
- Session 3 : 3D textile preforms
- Session 4 : Nano-fibers and composites
- Session 5 : Mechanical and thermal behavior
- Session 6 : Textile composites in impact
- Session 7 : Process simulation and control
- Session 8 : Textile modeling
- Session 9 : Numerical methods and simulation
- Session 10 : Mechanical design
- Session 11 : Industrial applications and case studies
- Session 12 : Natural fibers

Friday, October 29: Business Seminar for industrial companies.

Session n° 1

- **UP-tex and UTC**: Opportunities of composites: Eldorado or mirage?
- **JEC Composite Magazine**: Worldwide composite markets
- **ECOLE DES MINES and ENSAIT** : 3 day scientific conference synthesis: from R&D to applications
- **Success Stories 1: the experience of end-users in composites**
  - **GROUPE SAFRAN**: the development of composite casings for aircraft engines
  - **ALSTOM**: Composite Materials in railway: issues and challenges
- **Success Stories 2**: the implication of the textile industry in composites
  - **DUFLOT INDUSTRIE**: nonwovens for automotive composites
  - **LINEO**: Natural fibers in thermoset composites

Session n° 2

- **UP-tex**: CETI, European technological textile platform
- **REGION PICARDIE**: the C2TR, the platform to process and experiment composites
- +**COMPOSITES**: Awareness and Transfer of Innovation in composites Materials

B 2 B meeting organized by CLUBTEX

TEXTILE COMPOSITES: OVERVIEW

A composite is a close assembly of several non-mixable materials of a different nature, with qualities that complement each other, in order to obtain a heterogeneous material with a performance level that is higher than that of its components.

Let us recall a recent point made at the JEC Composites Show (Paris – May 2010).

According to its President, Frédérique Mutel, ''The composites industry is developing in all continents; it is a mature industry that has built a solid reputation in 60 years of existence. Today, composites are choice materials that can be found in the most prestigious industrial projects as well as in retail markets''.

In the world

In 2005, international textile composites represented approximately 62 billion Euros in turnover, representing 8.6 tons and the employment of 550,000 people.
Its value can be broken down as follows:

- 36% in North America
- 33% in Europe
- 31% in Asia

Market segmentation:

- The production of raw materials (resins, fibers, materials, etc.) represented 30% of the market
- The production of semi-finished products (fabrics, etc.) represented 10%
- Distribution represented 5%, and the production of finished products 55%

We have observed five major trends in terms of evolution since 2005:

- The strongest growth in volume in Asia
- The Aeolian market is growing rapidly (3% of market volume in 2007).
- The aeronautics sector consumes an ever-increasing amount of composites (4% of market volume in 2007).
- Injection processes are being developed.
- The thermoplastics industry has recorded the strongest growth (up 8%, representing 37% of market volume in 2007).

The market shows 5% growth per year. For 2010, it has been estimated at 80 billion Euros.
(Source: JEC Composites 2010)

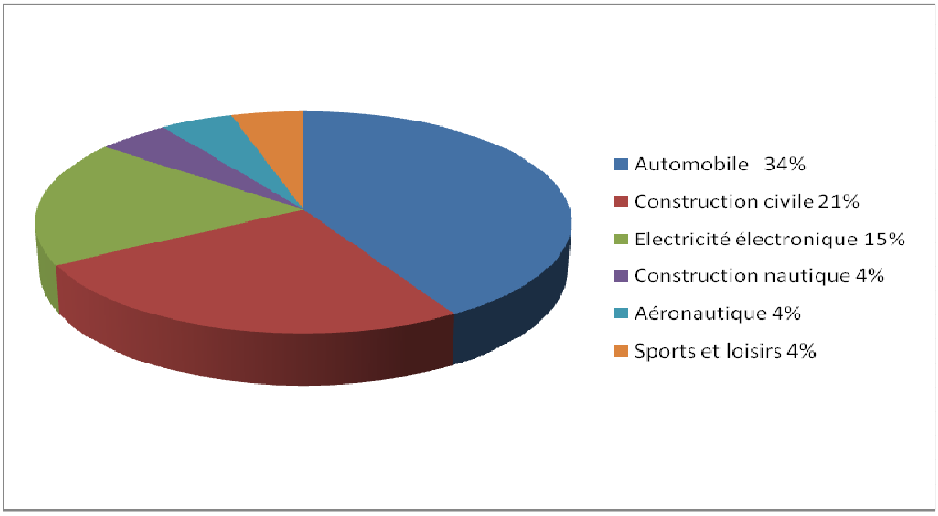
In Europe

According to the GPIC – Plastics Processing and Composites Grouping (www.gpic.fr), the European composites market has been assessed at 2 million tons, which can be broken down as follows:

- Germany 28%
- Italy 18%
- France 15%
- United Kingdom 8%
- Spain 8%
- Netherlands 7%
- Belgium 6%

Over the past years, the French industry of textile composite processing has benefited from rapid and sustained growth, particularly in the transport and building sectors.

In France, the market totals 300 000 tons, broken down by application in industrial sectors, as follows:



REALMS OF APPLICATIONS

It is important to remember that textile composites offer major assets with respect to traditional materials. They provide many functional advantages such as lightness, mechanical and chemical resistance, reduced maintenance, variety of forms and recyclability.

They also help increase the life cycle of some equipment due to their mechanical and chemical properties. They ensure added safety as a result of its good shock and fire resistance. They offer better thermal and sound insulation and, for some, good electrical insulation. They also add design opportunities by allowing structures to be made lighter and complex shapes to be formed, thus able to fulfill several functions.

In each one of the markets of application (transport, engineering, electricity, industrial equipment, etc.), these remarkable performance levels are at the root of innovative technological solutions. Research, focused more and more on the molecular structures of materials, is of interest not only for scientists. Industrial companies are indeed in search of innovation and play an active role in academic and private laboratories.

We can make a distinction between:

- ‘‘Wide distribution’’ composite materials, for which the mechanical properties are lower, at a cost that is compatible with large series production
- ‘‘High performance’’ composite materials, which offer specifically high mechanical properties as well as a high unit cost. They are used in the aeronautics and space industries.

Examples of application:

- *Automobile industry*: bumpers, body parts: Espace car shell, unlicensed vehicles, F1 cars, etc., parts under the hood, seat shells, safety hoods
- *Aeronautics*: fuselage of small planes, cockpit, helicopter blades, plane parts: floors, partitions, propellers, flaps, engine parts and spacecraft
- *Railways*: car front car, TGV (high-speed train), doors, shelves, sanitary facilities, seats, refrigerated cars, etc.
- *Naval ship/yachting boat construction*: civil and military boat hulls, sailboats, sanitary cabins, sailboards, etc.
- *Farming equipment*: tractor cabins, sprayers, silos
- *Industrial equipment*: tanks, reservoirs for chemicals, pipelines
- *Building and public works*: concrete formwork, plates, façade cladding, sanitary facilities, bathtubs, sewage tubes, urban furniture, etc.

THE GREAT NORTH (NORMANDY, PICARDIE, NORD-PAS DE CALAIS, BELGIUM) IN THE EUROPE OF TEXTILE COMPOSITES

Scientific Excellence Centers

National Higher Schools of Engineering: Ecole Nationale Supérieures des Mines of Douai, Ecole Nationale Supérieures des Arts et Industries Textiles in Roubaix, Technological University of Compiègne, Picardie Jules Verne University in Amiens, University of Lille 1 in Lille, ENSAM in Lille, Louvain Catholic University , University of Liège, University of Ghent, ONERA, CREPIM of Bruay-la-Buissière.

Technical Centers

Institut Français Textile et Habillement Nord (French Institute of Textile and Apparel of Northern France), CRITT-Polymères Picardy, Materia Nova in Mons, CENTEXBEL in Ghent.

Two structuring equipment bodies are being set up

- In the Nord-Pas de Calais Region, the **CETI** (European Center of Innovative Textiles), between Roubaix-Tourcoing-Wattrelos, to become operational in 2012**.**
- In the Picardy Region, the **C2TR** (Technical and Technological Center of Robotics) in Méaulte, to be operational in 2012.

Companies

Approximately 50 companies, textile-based composite manufacturers, are present north of Paris. Some of them supply several industrial sectors, such as Duflot Industrie; yet it is possible to identify the major players:

- 13 companies in the **automobile industry**: Nidaplast, Durisotti, Inoplast, Federal Mogul, Faurecia, etc.
- 9 companies in the **nautical sector**, Including Wauquiez ; 5 in **aeronautics**, including Stratim Composite System, Stratiforme, Aerolia (which is building a major center in the Picardy Region)
- 4 **railway** companies, including Stratiforme; 30 SME's for rolling stock, including MS Composite.

In Belgium, 95 research structures and companies are working within **Skywin,** the aeronautics Competition Cluster.

UP-TEX, ECOLE DES MINES OF DOUAI, ENSAIT, THREE PARTNERS FOR TEXCOMP

The Ecole des Mines of Douai, supported by the UP-tex Competition Cluster and ENSAIT, did their utmost to bring this world scale Conference, initiated by the Catholic University of Leuven (Belgium) in 1992 to the Lille Metropolitan Area. UP-tex organizes the entire event, the Ecole des Mines and the ENSAIT chair the Scientific Committee.

The UP-tex Cluster

The UP-tex Cluster is an association of companies, research and tech transfer centers that have been approved as a Competition Cluster by the French State in 2005. By 2015, the Cluster's aim is to become a European benchmark in the field of Advanced Textile Materials, Polysensoriality, Design and Mass Customisation.

UP-tex's goals are **:**

- to **federate** the best competencies for preparing and optimizing projects
- to place **textiles** at **the heart of the materials** of tomorrow through innovative applications in terms of functionality and usage, thus paving the way for a large number of opportunities in sectors offering high added value.

The UP-tex Cluster is at the service of its ecosystem by supporting the energy and performance of its industrial network. The services offered by the UP-tex Cluster include a number of actions that **facilitate an innovation-based approach**: assistance in mounting projects, fund raising and access to watch platforms.
UP-tex assists companies in **their international growth**: through strong cooperation agreements with Tunisian, Taiwanese and Quebecois Clusters, and through specific technological missions. On a European level, the UP-tex Cluster offers permanent representation in Brussels, and works actively in the innovation network CROSSTEXNET that regroups 17 major European textile regions. UP-tex leads a cross-border project, DIMETEX, to develop niches of textile-based medical devices.

63 projects have been approved since 2006. 40 have been funded, 13 are complete. The total R&D budget totals 67 millions Euros.

Out of the **27 ongoing projects**, more than half of the industrial partners are SME's from the Nord-Pas de Calais and Picardie Regions. Textile composites form the core of six (6) research projects. To be particularly noted:
NWCX: new manufacturing process of 3D structure and composite
Raid Outils: composite stiffener with textile base for aeronautics
FINATHER: innovative thermo-hardening composite materials with a very low impact on the environment for the automobile and railway sectors

www.up-tex.fr

Ecole d'Ingénieurs Centre de Recherche
Mines de Douai
LILLE EUROREGION

Ecole des Mines de Douai

Higher School of Engineering and a Research Center from the French Ministry of Industry, the Ecole des Mines de Douai focuses on:

Higher Education:
- The education of multidisciplinary engineers
- Adult vocational training for the needs of Industry and Administration
- High-level specialization (engineers, specialized masters, professional masters, research masters, PhD studies),

Research and technology transfer, **Company creation**

Ecole des Mines de Douai is a member of:

- The GEM network (Groupe des Ecoles des Mines). A federation of 7 institutions (Albi, Alès, Douai, Nancy, Nantes, Paris, Saint-Etienne) enabling a stronger international approach and a better efficiency on the international scene.
The GEM network works on 5 big issues: international matters, education and e-learning, research, mutual education offers and industrial matters.
www.gemtech.fr

- The PRES Lille University Nord de France. A public establishment for scientific cooperation, the University Lille Nord de France PRES (research and higher education network) counts 25 members, including 8 founding members, one of which being the Ecole des Mines de Douai. Its aims are to boost the visibility and appeal of higher education and research in the Nord Pas de Calais, by pooling resources and activities. Its missions focus on four main areas: research and innovation, continual training (continuing education), doctorate studies and international relations.

Key figures :
- 977 students in 2009/2010 (including 201 foreign students)
- 274 permanent staff members
- 77 PhD students
- 34 MEuros budget in 2009
- 5 research and teaching departments
- 194 publications and communications in 2009
- 7.24 MEuros industrial contracts in 2009
- About 60 projects supported by the incubator
- An employment rate of 64 % of students before the end of their studies and 87 % less than 2 month after graduation
- An average annual salary of 36,000 Euros (first job)
- Main recruiting sectors: Civil engineering (28.6%), Industry (24.2%), Energy (22.9%)

Polymers and Composites Technology & Mechanical Engineering Department
- Processing of polymers and polymer composites with tailored properties
- Mechanics and reliability of organic, metallic or hybrid structural parts

ENSAIT

Founded in 1889, the ‘‘Ecole Nationale Supérieure des Arts et Industries Textiles’’ trains more than 70% of French Master level textile engineers, thus making it Europe’s top institution for textile training.

ENSAIT first trains general engineers, who then specialize in on of the following key areas:

- Technical Textiles and Advanced Materials
- Distribution Design and Management

Research is a driving force at the ENSAIT. The ENSAIT hosts the GEMTEX, which ranks first amongst the French University Textile Research Laboratories. At the ENSAIT, the majority of teachers are researchers, and their research work enables them to establish important partnerships with highly regarded companies (Airbus Industry, Lacoste, L’Oréal, Lectra, BASF, Oxbow, Louis Vuitton, Alstom, Bombardier, Unilever, Michelin, etc.

41 PhD students are currently doing research at GEMTEX laboratory on various topics in relation with textile companies or on more fundamental subjects. The future of the textile industry and its competitiveness depend on innovation and research. Therefore, the role of the GEMTEX laboratory is to contribute strongly to these activities. The scientific areas covered by GEMTEX researchers are: smart textiles, renewable resources, customization, composite materials, sustainable development, etc.

Two scientific groups made up of research teams led by full and associate professors at GEMTEX are involved in :

- Industrial Management &Development
- Advanced Materials

Since 2005, a year in which the Up-tex scientific cluster located in Northern France - Lille, was created, the GEMTEX laboratory participates strongly in scientific projects at regional and national levels. GEMTEX collaborates at the European level with EURATEX (The European apparel and textile confederation), AUTEX (The International Association of Universities for Textiles) and TEXTRANET (European Network of Textile Research Organizations).

www.ensait.fr / www.gemtex.fr