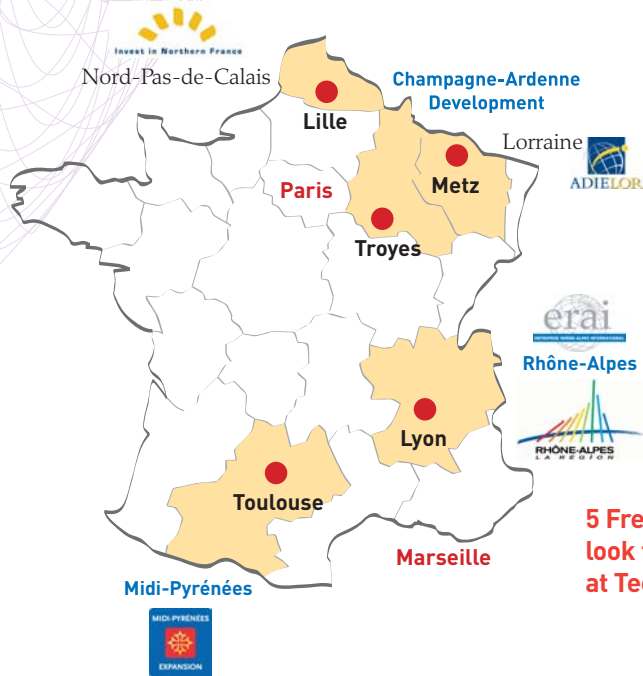


# FUNCTIONAL AND TECHNICAL TEXTILES IN FRANCE



## PROVEN EXPERTISE & SUCCESS

Combining its proven expertise and know-how of the textile industry with that of other sectors such as chemistry, mechanical and civil engineering, medical and agriculture, France has positioned itself as a key player in the functional & technical textiles industry.

**5 French Regions and Invest in France Agency look forward to meeting you at Techtextil 2005 in Frankfurt**

## FRANCE'S KEY POSITION IN THE WORLD

Home to innovative technical textile producers, France occupies an important place in the textiles industry:

French production of textile materials is growing at an annual rate of 3-4%, serves export markets and contributes to the development of high-tech products of Airbus, Ariane and TGV (high-speed train), and mass market products for industries such as Automobile, Home and Personal Protection.

### FRANCE OFFERS A WIDE RANGE OF PRODUCTION EXPERTISE

- Spinning of speciality fibers, such as glass (Saint-Gobain Vetrotex), aramid (Kermel), carbon (Soficar), vinyl (Rhovyl), polyester (Setila, Tergal), metallic (Ugitech), multi-functional: antistatic & antibacterial (R-Stat), hybrid yarns (Schappe Techniques)
- Functional textiles following weaving, knitting, braiding or nonwovens and chemical, physical or mechanical treatments

### IN A WIDE RANGE OF APPLICATIONS AREAS:

**Geotextiles:** Bidim Geosynthetics, subsidiary of Austria's Polyfelt, strengthens, stabilizes and drains soil, in partnership with LIRIGM in Grenoble University and several civil engineering laboratories; also offers an instrumented material, Geodetect, with fiber optics, a concept of CEA Leti. MDB Textinov reinforces nonwovens with multiaxial fabrics that permit increased resistance of more than 750 kN/m.

**Personal Protection:** Companies such as Paul Boyé, VTN, Bacou, Comasec and Matisec develop clothing for both security and comfort, using, for example, high-performance fabrics of Noiret Bohain or Bugis TT, and yarns from Schappe Techniques or R-Stat.

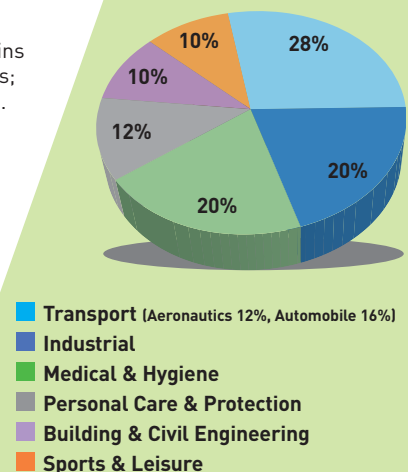
**Structural composite materials:** Known for its reinforcement, roofing and molding applications, Chomarat strengthens skis and boats' hulls. Mermet Industries reinforces building structures and is launching a new paintable fibre glass fabric. Leader in composite materials development, Hexcel contributes to the development of Airbus planes. Porcher Industries manufactures finished fabrics for the reinforcement of printed circuit boards. Among the innovations of Messier Bugatti, is the development of carbon/carbon brakes for airplanes, which were adopted by Airbus two decades ago and equip most airplanes today.

**Medical:** Major actors in the development of medical compression products include Innothera, Thuasne, Ganzoni and Gibaud. Cousin Biotech and Cardial create implants with integrated new molecules. Currently, Wealthy, a European project for instrumented clothes for medical use, is being developed with the support of top engineering university INSA.

**Hygiene:** Dounor specializes in the manufacturing of polypropylene nonwovens for the hygiene industry. Large international groups such as BBA and Georgia Pacific are also present in France.

**Sports & Leisure:** Sofileta has developed highly functional textiles, and Euracli is known for producing microcapsules containing perfumes, aroma, vitamins, essential oils for the textiles industry.

**Architecture:** Ferrari manufactures tensile membranes for the building sector, such as in stadium and train station coverings. Dickson is known for its production of fabrics for awnings and for exterior building structures.



**3.9 billion euros, equivalent to 600,000 tons or 17% of total European consumption**



Hexcel's carbon weaving factory in Les Avenières, the largest in the world

**Industrial Applications:**

Mortelecque and Sefar Fyltis play an important role in the design and manufacture of fabrics for wet and dry filtration. Sovoutri and Milliken produce adherized textiles for the manufacturing of rubber goods such as conveyors and synchronization belts.

**Automotive:** Michel Thierry is the European leader in car seat fabrics. Key players also include Samuel Roche (safety belts), NCV (airbag fabrics) and Ames Europe (knitted spacer fabrics for ventilation and filter systems).

## DYNAMIC ENVIRONMENT FOR INNOVATION

**Top Universities and Training**

The country's focus on quality education and producing top-calibre engineers and technicians has contributed to the evolution of the textile industry in France from clothing to the use of high-tech fabrics in the design of ultimate performance products. The multidisciplinary of France's engineers is a key factor in this transformation. Internationally-renowned engineering schools include ENSAIT and ESTIT in Northern France, ENSITM in Northeastern France and ITECH in Lyon.

**R&D and Innovation**

In addition to research at France's top schools and IFTH, partnerships with other branches of activity have guaranteed continued development in functional & technical textiles: civil engineering (LIRIGM), agronomy (INRA), micro and nanoelectronics (CEA Minatec), medical (INSERM), materials & sensors (INSA); National Center for Scientific Research CNRS in Lille, Lyon, Mulhouse and Troyes.

**Nanotechnology applied to the textile industry:**

Neatex: national program using nanoparticles in textile applications, with the participation of CEA, ITECH, IFTH, INSA and ENSAIT; Metis: regional program in micro and nanoelectronics of the CEA Minatec, applied to textiles and led by Sofileta.

**Machine construction:** NSC Group and Rieter, a Swiss group, are producing specific equipment for technical textiles production, such as the Lectra System for cutting and designing airbags and personal protective equipment. Additionally, Laroche, a nonwoven machinery producer, has created the innovative NAPCO process for the manufacture of 3-D nonwoven structures made of two or more fibrous webs for composite products. Spiraltex produces specialized

braiders for the aeronautics industry, including a 3-D braider that was created in partnership with the French Institute for Textile/Apparel IFTH and L2M (University of Lyon).

**R2ITH:** Industrial Network for Innovation in Textiles & Apparel.

Comprised of textile companies, R&D centers and 8 regions in France with a focus on introducing innovative production methods: current projects include production technologies of nonwovens in Tourcoing at CENT (European center for nonwovens), platform for 3-D knitting in Troyes, chemical grafting platform at CREAT in Lyon, medical modelling, standardization and sensor integration in medical textiles in Saint Etienne.

**CE Marking** guarantee for Personal Protective Equipment PPE, sports and medical devices and geotextiles can be provided by IFTH.

## ATTRACTIVE DESTINATION FOR INTERNATIONAL INVESTMENT

**A significant international presence in France in the technical textiles industry**

Major international companies have invested in France in order to take advantage of the country's resources, savoir-faire and creativity: Hexcel (USA) has installed the largest carbon weaving factory in the world in les Avenières. Glen Raven (USA) acquired Dickson, a leader in awning and marine fabrics. Saertex (Germany) established a site in Isère for reinforcing materials. Switzerland's Sefar, leader in providing screens and filter media for screen printing and filtration applications, established a subsidiary in France.

**Examples of international partnerships include**

- Epurae, in La Tour du Pin, is a joint creation of France's Rovitex and Finland's Ahlstrom. The company offers solutions to fight against olfactory problems emitted by waste waters in open fields and develops air purifying equipment.
- Fibroline in Lyon: created a process that allows for the continuous impregnation of fibrous assemblies (wovens, nonwovens, natural fibres, synthetics) with powders (thermosetting, thermo-plastic, mineral, cosmetic). The partnership combines the patents of the Belgian Fibroline with the R&D of IFTH and the machinery of Switzerland's Strahm.

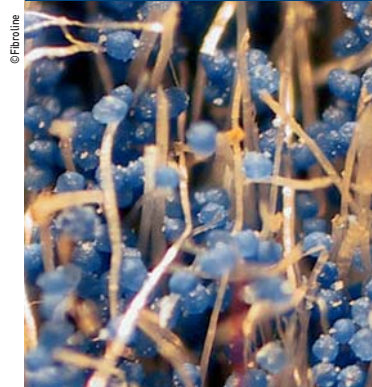
### Key figures:

**French production of functional and technical textiles**

- Number 2 manufacturer in Europe, after Germany and ahead of Italy, UK and the Benelux countries
- 450 companies, primarily SMEs
- 6 billion euros in turnover, accounting for 37% of the textiles industry

### Invest in France Agency (IFA)

is the national body responsible for promoting, prospecting and facilitating international investment in France. It also coordinates initiatives promoting the appeal and image of France. The IFA network operates worldwide, with offices in France at both the national and local level. It draws on the expertise of specialists in a range of disciplines based at its head office in Paris, as well as in offices in North America, Europe and Asia. In France, IFA works in partnership with regional development agencies to offer international investors outstanding business opportunities and customized services. For more information, please visit: [www.investinfrance.org](http://www.investinfrance.org)



Powder-soaked textile by Fibroline procedure under alternative electric field