

## EUROPEAN CENTRE FOR ADVANCED COMPOSITE MATERIALS IN THE TRANSPORT SECTOR

C E M T C A

### ***The CEMCAT project will create :***

- ***On one dedicated site, around an efficient and advanced technological centre,***
- ***High level competencies (design and research engineering),***
- ***A grouping of some of the major players in the composite material field working for the transport sector,***
- ***All with the same objective :***
  - to contribute to the competitiveness of the organisations (already existing or being created) by***
  - 1 - encouraging more widespread use of high performance composites, such as carbon fibre (particularly through improved characterisation),***
  - 2 - optimising moulding processes for composites (particularly SMC <sup>[1]</sup> and RTM <sup>[2]</sup>) : reduction in cycle time, improving product performance and appearance, ...***

[1] SMC : Sheet Molding Compound

[2] RTM : Resin Transfer Molding

## *Developing initiatives in 3 main areas :*

- ***R&D***, in the framework of partnerships with industry (experimentation, tests, validation, pilot production)
- ***Transfer of technology related to composite application*** : awareness raising, demonstrations, diagnostics, etc.
- ***Training*** initiatives in partnership with the AFPA (French national professional training body)..

## *Industrial Players*

- *Upstream from composites processing, the industrial material suppliers.*
- *Industrial processing firms.*
- *Downstream from composite processing : the main industrial users of composite parts from the transport sector (automobile, aeronautics and railway manufacturers, shipbuilding firms, etc.).*

## *Professional Federations in the Plastics Industry*

- *Fédération Professionnelle Plasti Ouest*
- *Institut Automobile du Mans*
- *Performance 2010*

## *Highly specialised research and training centres*

- *In terms of further education and research, the CEMCAT will receive support from the ESTACA <sup>[1]</sup>, an engineering school focused exclusively on the transport industry (automobile, aeronautics, rail and aerospace). The school has sites in Paris and Laval and is equipped with a "structure and materials" research laboratory that is particularly concerned by the technical issues on the CEMCAT agenda.*
- *In terms of professional training, the AFPA <sup>[2]</sup> will play an active role within the CEMCAT. Indeed, this national organisation has a plastics-dedicated centre located in Laval. The centre is particularly geared towards training set-up operators for injection and extrusion machines and tools, composite lamination operators, plastics workshop technicians and advanced composite technicians.*
- *Partnerships will also be established with a number of other institutions whose activities complement those of CEMCAT: University of Maine, ENSAM in Angers, specialised European university laboratories such as Kaiserslautern, Aix la Chapelle, Louvain, Naples and Nottingham.*

<sup>[1]</sup> ESTACA : École Supérieure des Techniques Aéronautiques et de Construction Automobile

<sup>[2]</sup> AFPA : Association nationale pour la formation professionnelle des adultes

## Context And Opportunities Of The Project

**the CEMCAT project lies at the intersection between the following three essential dimensions:**

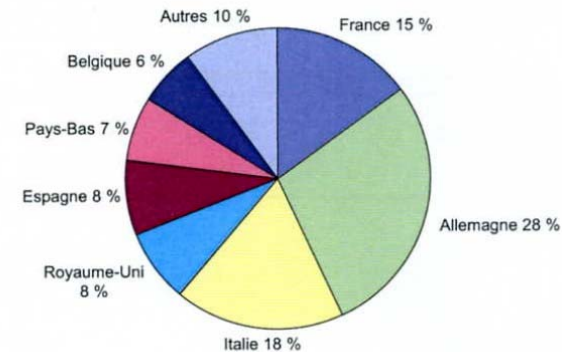
- **the "materials" dimension : carbon-fibre composites,**
- **the "sector" dimension : the transport sector,**
- **the "technology-process" dimension : mould processing using SMC, RTM, induction welding, etc.**

➤ **The market for composites is a new and rapidly expanding market:**

➔ **+ 47 % between 2000 and 2006**

➤ **The French volume currently represents only 15% of the European market**

Les parts de marché en Europe



Source : étude matériaux composites - estimations Nodal Consultants - année 2000

## *The transport sector: the leading user of composites*

*The transport sector (automobile, rail, aeronautics and shipbuilding) is the leading market for composites.*

- *The part of this market sector in France represents 46 % (volume).*
- *In value terms it represents 54 % of the French composite market.*

## *Important advantages of composite material in the area of ground transportation*

- *Meeting cost constraints by minimising the level of investment*
- *Ease of maintenance*
- *Design freedom*
- *Weight saving*

*Car manufacturers consume large quantities of mass-distribution composites such as body strengthening panels, deflectors, body-work parts, bumper beams, tailgates, etc*

## *Aeronautics Industry*

- *Focus on materials with very high performance (lightweight, flexible, corrosion resistant) which also leads to higher costs.*

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