



## High Performance Glass Fibre Reinforced Plastics (HP-GFRP)

### in the European Automotive Industry

An **Inovev** study conducted by offices based  
in **France** (Paris) and **Germany** (Essen)

Presentation of the study

#### Analysed Topics:

- Strategies and action plans of carmakers
- Processes in-series and in-development
- Parts in-series and in-development
- Key suppliers and supply chain
- R&D partners of carmakers
- Cooperative projects, with or without the carmakers
- Insight into future
- Quantitative market from 2016 up to 2021, with trends after 2021

#### Carmakers Groups Analysed:

BMW - Daimler – Fiat Chrysler – Ford –  
Geely (Volvo) – PSA – Renault Nissan –  
Tata (Jaguar LandRover) – Volkswagen

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### High Performance - Glass Fibre Reinforced Plastics (HP-GFRP):

#### HP-GFRP means:

All parts containing glass reinforcements whatever their shapes and the process used to produce them, **excepting** injection-manufactured parts made from thermoplastic or thermoset pellets, containing short (from 0,1mm to 1mm) or semi- long (up to 10 mm) glass fibres.

- Abbreviations - Acronyms
- Objectives and background
- Methodology
- Executive summary
- Strategies and action plans of carmakers
- Materials/Processes in-series and in-development
- Parts in series and in-development:
  - in-series: identification of in-series parts by models
  - In-developments: parts under projects
- Key suppliers and supply chain
- R&D partners of carmakers
- Cooperative projects, with or without the carmakers
- Insight into future, most likely parts, materials and processes:
  - When
  - In what materials and by what processes
  - Volume
- Quantitative market from 2016 up to 2021, with trends after 2021

# Objectives

## Objectives in brief:

- Support automotive industry in developing HP-GFRP
- Identification of the best parts and technologies to target.

## Objectives in details:

- This study was demanded to Inovev by its customers after their following analysis of the trends in the European automotive industry:
  - Due to the decrease of diesel motorizations, more CO2 is emitted by thermal engine cars. Each time that a diesel engine car is replaced by a gasoline car, CO2 jumps by around 20%. At the same moment, European commission has an objective to lower the average CO2 emitted by cars in Europe (Euro 6 and Euro 7 target).
  - Some carmakers are better positioned than other ones for reaching the planned limits, but all will have to work.  
**A valuable option is to decrease the weight of vehicles, in particular by utilizing light materials such as composite materials. In addition, weight decreases enable less pollutants emissions.**
  - At the same time **a growing number of alternative energy vehicles, especially electrified vehicles**, arrive onto the market. And, in parallel, **new functions are developing fast**, such as ADAS (Advance Driver Assistance Systems), with its ultimate stage: the autonomous vehicle. These trends lead to new designs and engineering. Some parts disappear, new parts appear, some parts are drastically modified.
  - Another trend is the evolution of styling (SUV vehicles, electric vehicles).

All these factors reinforce the competition between materials, but also their alliances, towards an optimised and affordable design.
- **Composite materials have many assets.**
  - Carbon Fibre Reinforced Plastics materials are very interesting due to their performances but their prices make them restrained to Premium car markets (see CFRP study edited by Inovev).
  - Thanks to their much lower price, High Performance Glass Fibre Reinforced Plastics are already used for mainstream cars for the construction of many different types of parts.  
**But much more GFRP applications could be developed, providing that their productivity increases.**

Consequently, major R&D projects have been conducted over the last years, projects which have started and will continue to be a basis for new applications.
- All these elements and discussions with automotive industry companies have led Inovev to launch this new study relating to the High Performance Glass Fibre Reinforced Plastics.

# Presentation of the study

## ○ Deliverable

- Powerpoint in English – 150 pages minimum.
- Excel file relating to market volume data.
- Access to an on-line database of applications.

## ○ Schedule

- Start: 1/12/2017.
- End: 30/04/2018.

## ○ Intellectual property and license:

- Multi-client study.
- Full property of the study and results belong to Inovev.
- Each company (defined by its registration number) acquires an unlimited license to use the study and its results for its own purposes.

No right for purchasing companies to transmit the study and/or part of the study to another company.

As an exception to this rule, the member may present documents based on the results of this study to customer or partner companies without authorisation from Inovev. However, the Inovev's customer undertakes to clearly indicate the source of information by stating "Source: Inovev".

## ○ Methodology

- Knowledge of the existing
  - Construction of a database of known innovative applications (knowledge of the existing).
  - Desktop work relating to R&D projects.
- View of the future
  - Construction by Inovev of a questionnaire.
  - Interviews of managers of the automotive industry supply chain.

# Price of the study and advantages

## ➤ Principle:

- Depending on when the study is acquired.
- Significant discount and advantages for early birds.
- Advantages for contributors to the study.

## ➤ Price table:

	Breakdown for information*		Sold product
	Database	Study	Study + Database
3 first subscribers (early bird)	free	15 000	15 000
2 following subscribers (launch rate)	5 000	15 000	20 000
Other subscribers (basic)	10 000	15 000	25 000

\* = one-year subscription database and study are only sold together

**In addition to the free database, early birds will have the possibility to include specific questions relating to their plans in the study specifications.**

## ➤ Advantages for contributors to the study

- Contributors who do not acquire the study: free 10-pages summary of the study
- Contributors who acquire the study:
  - Promotion of their company in the study
    - ✓ 1 page in the report
    - ✓ visibility on the Internet database and Inovev site (wall)

## ➤ **BMW Group**

- BMW
- Mini

## ➤ **Daimler Group**

- Mercedes
- Smart

## ➤ **FCA Group**

- Fiat

## ➤ **Ford Group**

- Ford

## ➤ **Geely**

- Volvo

## ➤ **PSA Group**

- Citroën/DS
- Peugeot
- Opel/Vauxhall

## ➤ **Renault-Nissan Group**

- Dacia
- Renault

## ➤ **Tata**

- Jaguar
- Landrover

## ➤ **Volkswagen Group**

- Audi
- Porsche
- Volkswagen/Skoda/Seat

# Inovev, and managing team of the HP-GFRP study

## ○ Inovev

- Carried out successfully the study “Carbon Fibre Reinforced Plastics in German carmakers”. Last update: February 2017- Study sold to many big companies in Europe, Japan and Korea.
- Executive management coming from the company Mavel which, during 15 years, has analysed the design and engineering of more than 100 vehicles by disassembling them completely.
- Organised completely the “automotive” chapter of “China Composites Expo 2017”:
  - 300 m<sup>2</sup> Innovations pole.
  - A full day of conferences.
  - An on-line database of more than 150 innovative parts.

## ○ Michel Costes, CEO of Inovev, 65

- More than 35 years experience in automotive composites.
- Has founded the company Mavel which, during 15 years, has analysed the design and engineering of more than 100 vehicles, and then has created Inovev.
- First lecture on automotive composite in 1983.
- Most recent lecture: Keynote paper of China Composites Expo 2017.

## ○ Jamel Taganza, VP of Inovev, 36

- More than 10 years of experience in analysis of design and engineering of cars.
- Several lectures on automotive market and technologies.
- Co-founder of Inovev.

## ○ Alain Giocosa, Senior consultant, retired from Renault

- Formerly head of polymer materials in Renault.

## ○ Jean-Pierre de Lary, Senior consultant, 58

- During more than 30 years at the head of French Composites Professional Organisation (GPIC).



# Interest in the study

Please fill in the contact form  
and send it by email to: [jamel.taganza@inovev.com](mailto:jamel.taganza@inovev.com)

1

Contact information

First name:

Last name:

Company:

Position:

Address:

ZIP Code:

City:

Country:

Email:

Phone:

2

Signature

I might be interested in subscribing to the GFRP study  
Please contact me

Signature and date

Company stamp (optional)



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