



# INFINITE INNOVATION

2016 Business Review



|    |   |
|----|---|
| 02 | <b>We are Plastic Omnium</b>  |
| 06 | <b>2016, a banner year</b>  |
| 08 | <b>Message from the Chairman and CEO</b>  |
| 10 | <b>Governance</b>   |
| 14 | <b>Financial performance</b>  |
| 18 | <b>CSR performance</b>  |
| 20 | <b>A never-ending passion<br/>for enterprise</b><br>A look back at a 70-year<br>industrial adventure        |
| 26 | <b>Plastic Omnium, the current<br/>and future solution</b><br>Exterior products, Propulsion,<br>Environment |
| 46 | <b>The infinite future is here</b><br>R&D, industry, teams: driving<br>Plastic Omnium's momentum            |

2016 was a banner year for the world auto market and also for Plastic Omnium. Against the backdrop of a fast-changing sector, the Group celebrated its 70th anniversary and took the time to look at where it has come from and decide where it is heading. Plastic Omnium's past experience, its success in rising to challenges, close relations with the auto majors, its plant and equipment, rational international expansion and the ingenuity and engagement of its teams – all make a compelling case for the Group's participation in the revolution now under way in the automotive sector. Plastic Omnium has the potential and agility to achieve **infinite innovation**.

# WE ARE PLASTIC OMNIUM

## OUR MISSION

To improve the world's carbon footprint by reducing automobile emissions and optimizing waste management.

### EXTERIOR PRODUCTS AND MODULES



**27  
million  
bumpers**  
produced annually

**1 in 7  
vehicles**  
equipped worldwide

### PROPULSION



**20  
million  
tank systems**  
produced annually

**1 in 5  
vehicles**  
equipped worldwide

### ENVIRONMENT

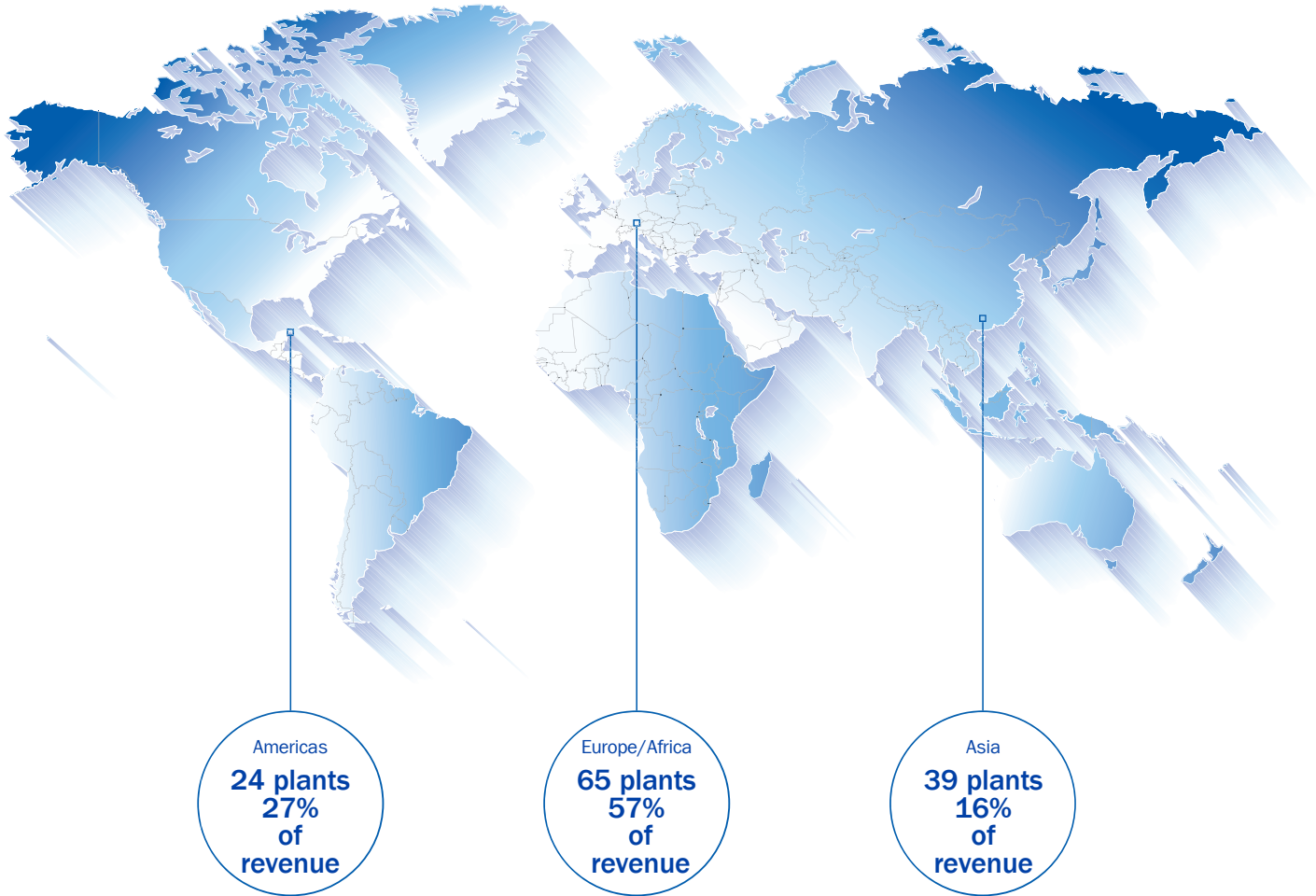


**100  
million  
waste containers**  
installed worldwide

**5,000  
municipalities**  
equipped



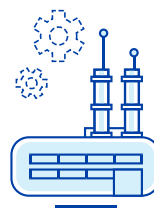
## A LEADING EQUIPMENT SUPPLIER



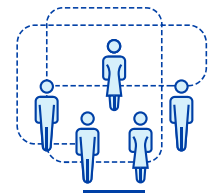
**€7.5<sup>bn</sup>**  
revenue (2016 pro forma)



**23**  
R&D centers



**128**  
plants in  
31 countries



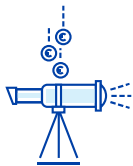
**33,000**  
employees

## A PARTNER IN MANUFACTURING EXCELLENCE



# 160

automotive programs  
initiated in 2016



# €2.5 bn

capital expenditure  
in 2016-2020



# 6%

of revenue invested  
in R&D

# 70

automaker  
customers





## A FAMILY FIRM WITH STRONG VALUES

### A 70-year history

#### Three chairmen belonging to the family

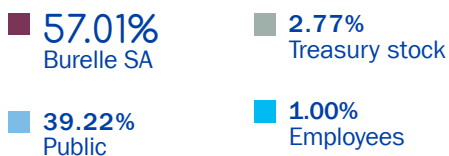
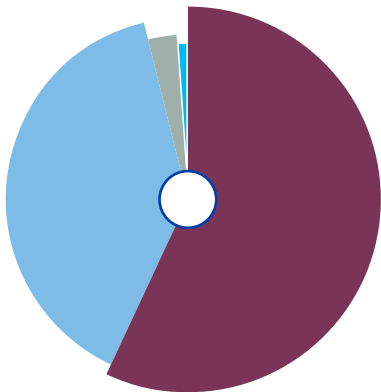


#### Jean, Pierre and Laurent Burelle

Pierre Burelle, Chairman from 1946 to 1987  
 Jean Burelle, Chairman from 1987 to 2001  
 Laurent Burelle, Chairman since 2001

### SHAREHOLDING STRUCTURE

at December 31, 2016



### LONG-TERM VISION

#### INDEPENDENCE

The family's majority control of the Group through the Burelle SA holding company ensures freedom of action and calls for cash flow commensurate with the Group's ambition.

#### INVESTMENT

Plastic Omnium invests in manufacturing and R&D to capture market growth.

#### INNOVATION

Innovation is part of Plastic Omnium's DNA and strengthens its sustained leadership in its two businesses – Automotive and Environment.

#### INTERNATIONAL

Automakers have taken Plastic Omnium around the world and the Group will continue to follow them to the world's growth regions.

#### INTEGRATION

The "PO Way" brings together employees on all continents – whether recruited or brought in through acquisitions – to share a common engagement and passion for enterprise.



# 2016, A BANNER YEAR

A year of growth, expansion,  
plant construction, hiring,  
innovation and more.



## PLASTIC OMNIUM CELEBRATED ITS 70TH ANNIVERSARY

When Pierre Burelle began processing plastics on **April 15, 1946**, he was taking a bold step into a revolutionary technology. Plastic Omnium was on its way.





## PLASTIC OMNIUM ACQUIRED FAURECIA EXTERIOR SYSTEMS



The Group's largest-ever acquisition has brought in €1 billion in revenue and extended the Group to Germany, where it has €800 million in revenue, (of which 40% generated with premium manufacturers), five plants and a 300-person strong R&D center.

## PLASTIC OMNIUM TOOK PART IN THE PARIS MOTOR SHOW FOR THE FIRST TIME

After the Frankfurt, Shanghai, Beijing and Detroit shows, Plastic Omnium participated in the major Paris Motor Show. At its 550 square meter booth alongside the biggest automakers in Hall 1, the Group displayed its research results. Meanwhile, the Group's "Infinite Innovation" advertising campaign in the French print press highlighted Plastic Omnium's new scale and vision.

# 10%

## PLASTIC OMNIUM JOINED THE RANKS OF MAJOR AUTOMOTIVE SUPPLIERS IN TERMS OF SIZE AND PROFITABILITY

Plastic Omnium's profitability exceeded the 10% mark in the first half, placing it in the front ranks. The Faurecia acquisition consolidates its position as the world's top Auto Exterior supplier and boosts it from 40th to 29th place among the world's automotive suppliers.





2016 WAS AN  
EXCEPTIONAL  
YEAR FOR  
PLASTIC OMNIUM  
IN EVERY WAY.

**Laurent Burelle**  
Chairman and Chief  
Executive Officer

**Financially,** Plastic Omnium set new records with further double-digit growth across all its financial aggregates. Our net profit increased 21% to €312 million, setting the stage for investment going forward.

**Strategically,** Plastic Omnium carried out the largest acquisition of its history when it integrated Faurecia's Exterior Systems business. The goal of this major transaction was fully achieved,

bringing in additional revenue of €1 billion from Germany, Spain, Slovakia, Belgium and Argentina. The acquisition takes the Group to a new level. Our 2016 pro forma revenue came in at €7.5 billion and Plastic Omnium moved up from 40th to 29th place among automotive suppliers worldwide. The acquisition gives Plastic Omnium a presence in Germany, where we had not previously produced exterior products and modules, bringing in five factories, an R&D center with 300 employees, and



€800 million in revenue. Above all, this move creates new ties with strategic customers – Audi, Mercedes and Ford – and strengthens our relationships with Volkswagen and BMW. It also bolsters Plastic Omnium’s world leadership in exterior products, where it now accounts for 15% of the world market.

In 2016, we divested a number of non-strategic activities, and more particularly the heavy-duty truck business, in order to concentrate on Plastic Omnium’s core businesses.

**In sales,** 2016 was an exceptional year for the world auto industry and an even more exceptional year for Plastic Omnium, which serves 70 automakers in 31 countries and launches close to 200 new models every year. We owe this exceptional outperformance to our investments in new industrial capacity, to the across-the-board success of our innovation portfolio covering vehicle weight (CO<sub>2</sub>) and pollution (NO<sub>x</sub>) reduction and to our consistent operational excellence, from manufacturing to logistics and customer service.

**In industrial production,** we commissioned four new factories in 2016 and have five under construction around the world. Plastic Omnium’s plant and equipment have been optimized to capture growth. The Group is known for its industrial excellence; but as we never rest on our laurels, we are taking it to a new level by moving to the era of big data. The plant under construction in South Carolina will be to “industry 4.0” standard, to ensure better, higher-quality, more cost-effective production. It marks a revolution in the way automobiles are designed and produced and a major advantage for Plastic Omnium in the future. In another record for the year, we spent €402 million on industrial capacity in 2016, amounting to 7% of our revenue.

**In innovation,** as we emphasized in our advertising campaign, we aim for infinity. We recruited a Scientific Director to take charge of our innovation programs and boost our momentum. At the Paris Motor Show, Plastic Omnium presented a show-stopping prototype hydrogen storage system that supports long-distance electric propulsion. The Group is steadily gearing up for the coming upheaval in mobility and automotive propulsion. The EPO-CELLTECH startup, based in Israel, will look for breakthrough fuel cell and supercapacitor solutions, and a third international research center focusing on new energy sources, Δ-Deltatech, will open in Brussels in 2019. It will reinforce our global leadership position in fuel systems, with 21% of the market.

**In human resources,** between our acquisitions and hirings related to our growth, almost 10,000 new employees joined Plastic Omnium. We must now share our best practices with them to remain within the exclusive group of major automotive suppliers. We must also share the Plastic Omnium culture, the “PO Way” – the passion for enterprise, hard work and success – as we work together to achieve the prospects held out by the infinite future.

Building on our 70-year history, these results and the significant progress we have made and on the engagement of all our people, we will confidently pursue our profitable growth strategy in 2017.

# BOARD OF DIRECTORS

The Board of Directors is the decision-making body responsible for the operation of the company, its forward-looking strategy and compliance with the rules of good governance. It is made up of 13 members with respected and complementary managerial, industrial and financial expertise. Six of its members are independent directors and five are women, exceeding France's legal gender balance requirement. In 2016, the Board of Directors met five times and had an attendance rate of 95%.

## Audit Committee

Made up of three directors, two of whom are independent, the Audit Committee examines the financial statements, analyzes procedures, reviews all issues that may have a financial impact on the Group and reports to the Board of Directors. In 2016, it met three times.

## Compensation Committee

Consisting of three independent directors, the Compensation Committee makes recommendations to the Board of Directors regarding the compensation and stock options of executive company officers. In 2016, it met three times.

## Appointments Committee

Made up of three directors, two of whom are independent, it reviews and makes recommendations to the Board of Directors on appointments to the Board. The committee also draws up succession plans for executive company officers. It met once in 2016.



**Laurent Burelle**  
(since 1981),  
Chairman and CEO



**Paul Henry Lemarié**  
(since 1987),  
Chief Operating  
Officer



**Jean Burelle**  
(since 1970),  
Honorary Chairman



**Jean-Michel Szczerba**  
(since 2012),  
Co-Chief Executive Officer



**Éliane Lemarié**  
(since 2009),  
Representative  
of Burelle SA,  
Appointments  
Committee member



**Anne-Marie Couderc**  
(since 2010),  
Independent Director,  
Chairwoman  
of the Compensation  
Committee,  
and Appointments  
Committee member



**Alain Mérieux**  
Director  
(since 1993)

**Vincent Labruyère**  
Director  
(since 2002), Member of  
the Audit Committee

**Amélie Oudéa-Castéra**  
Independent Director  
(since 2014),  
Member  
of the Compensation  
Committee

**Lucie Maurel-Aubert**  
Independent Director  
(since 2015)

**Jérôme Gallot**  
Independent Director  
(since 2006)  
Member of the Audit  
and Appointments  
Committees

**Prof. Dr. Bernd Gottschalk**  
Independent Director  
(since 2009)  
Member  
of the Compensation  
Committee

**Anne Asensio**  
Independent Director  
(since 2011)  
Chairwoman  
of the Audit Committee



# EXECUTIVE COMMITTEE

01



04

02



05

03



06

01

**Laurent Burelle**  
Chairman and  
Chief Executive  
Officer

02

**Jean-Michel  
Szczerba**  
Director,  
Co-Chief  
Executive Officer

03

**Paul Henry Lemarié**  
Director,  
Chief Operating  
Officer

04

**Rodolphe  
Lapillonne**  
Senior Executive  
Vice-President  
& CFO

05

**Félicie Burelle**  
Executive Vice-  
President, Strategy  
and Development

06

**Eric Auzépy**  
President & CEO  
Auto Exterior  
Division

### Global reach

The Executive Committee performs its duties in a spirit of collegiality, anticipation and highly responsive decision-making. It meets monthly. Since the Group is global, its meetings take place in each of the world's major regions to enable local managers to attend.

### Leadership

The Executive Committee coordinates strategy, financial and commercial performance, and implementation of the Health, Safety and Environment (HSE) plan. It reviews capital and R&D investment, with particular attention to cost control and operating cash flow management.

07



08



09



10



11



12



07

08

09

10

11

12

**Mark Sullivan**  
President & CEO  
Auto Inergy  
Division

**Michel Kempinski**  
President & CEO  
Environment  
Division

**Jean-Sébastien  
Blanc**  
Executive Vice-  
President, Human  
Resources

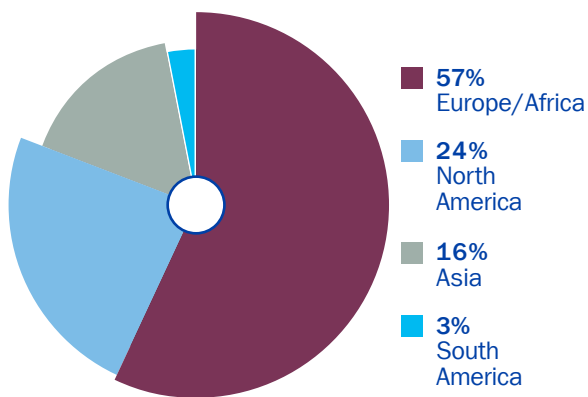
**Jean-Luc Petit**  
Corporate  
Secretary,  
Executive  
Vice-President,  
Legal Affairs,  
Chairman of the  
Internal Control  
Committee

**Adeline  
Mickeler**  
Executive  
Vice-President,  
Communications

**Ronan Stephan**  
Executive  
Vice-President,  
Scientific Director

# 2016, A RECORD YEAR

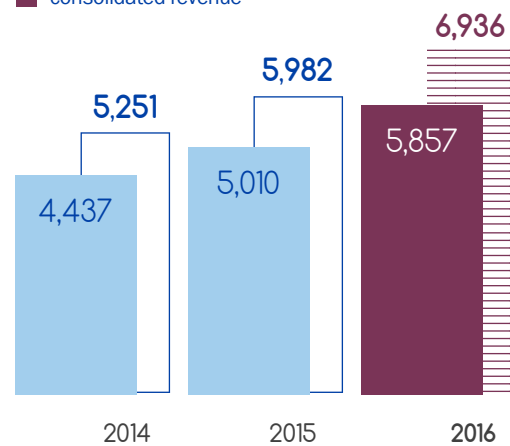
## REVENUE BY REGION



pro forma economic data

## REVENUE

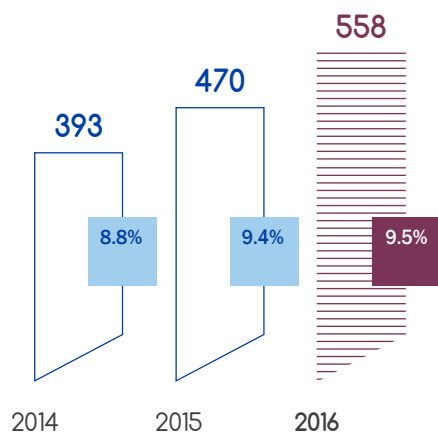
in € millions  
 — economic revenue  
 ■ consolidated revenue



Economic revenue corresponds to consolidated revenue plus the Group's share of revenue from joint ventures based on its ownership percentage in each.

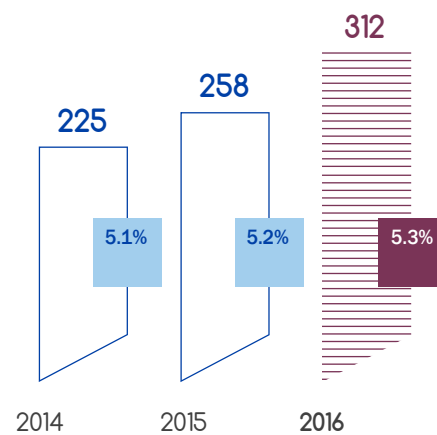
## OPERATING MARGIN

in € millions  
 and as a % of consolidated revenue.



## NET INCOME, GROUP SHARE

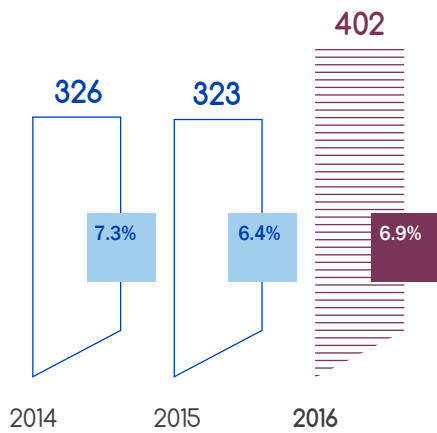
in € millions  
 and as a % of consolidated revenue.





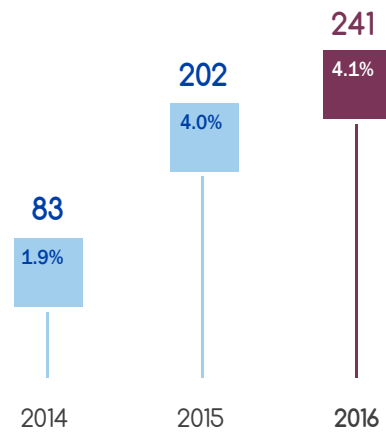
## CAPITAL AND PROJECT INVESTMENTS

in € millions  
and as a % of consolidated revenue.



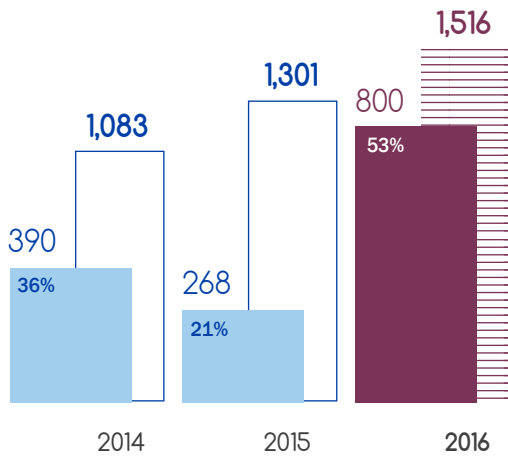
## FREE CASH FLOW

in € millions  
and as a % of consolidated revenue.



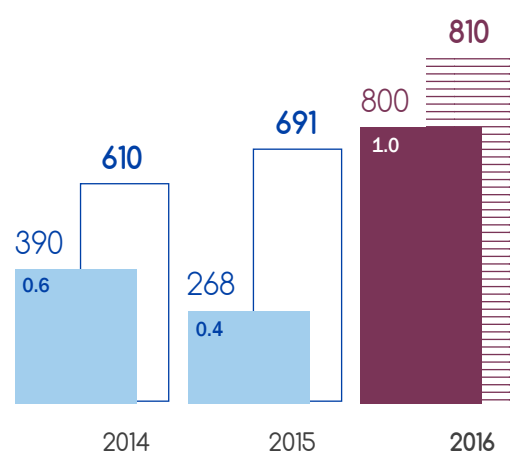
## NET DEBT/EQUITY

in € millions  
Net debt/equity as a %.



## NET DEBT/EBITDA

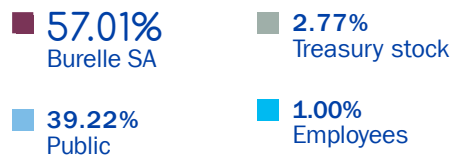
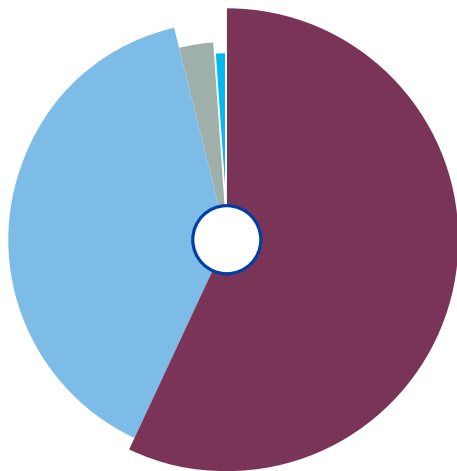
in € millions  
Net debt/EBITDA ratio.



# SHARE PERFORMANCE

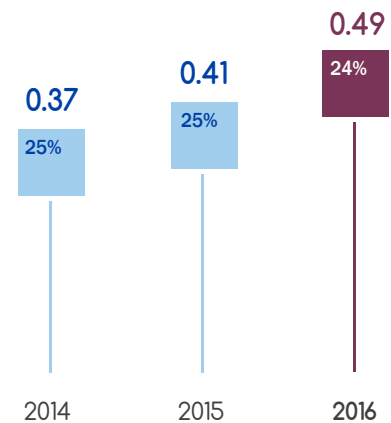
## SHAREHOLDING STRUCTURE

At December 31, 2016



## DIVIDEND PER SHARE

in euros



Payout ratio in %

## OPEN HOUSE FOR OUR SHAREHOLDERS

Plastic Omnium held its first-ever "Shareholder Tour" of the  $\alpha$ -Alphatech international Research and Development center in Compiègne, France, which is dedicated to fuel tank and pollution reduction technologies.



## Shareholder Department

0 800 777 889 Service & appel gratuits

Management of registered shares:  
BNP Paribas Securities Services  
Tel.: +33 (0)826 109 119

## MAIN 2016 SHARE DATA

### Share price (in euros):

High: 31.19

Low: 24.45

At December 31: 30.33

Number of shares making up  
the capital stock

at December 31, 2016:

152,476,720 shares

### Market capitalization at February 28, 2017:

€4,861

## LISTING INFORMATION

### Exchange

Euronext Paris,  
Compartment A

### Code

FR0000124570

### Share indices

CAC Mid60 – SBF 120

### Other information

Eligible for the SRD

### Tickers

Reuters: PLOF.PA

Bloomberg: POM: FP

## 2017 FINANCIAL CALENDAR

### FINANCIAL PUBLICATIONS

#### 2016 annual results

February 23, 2017

#### Quarterly data

##### Q1 2017

April 25, 2017

#### 2017 interim financial results

July 21, 2017

#### Quarterly data

##### Q3 2017

October 24, 2017

### SHAREHOLDER CALENDAR

#### Annual Shareholders' Meeting

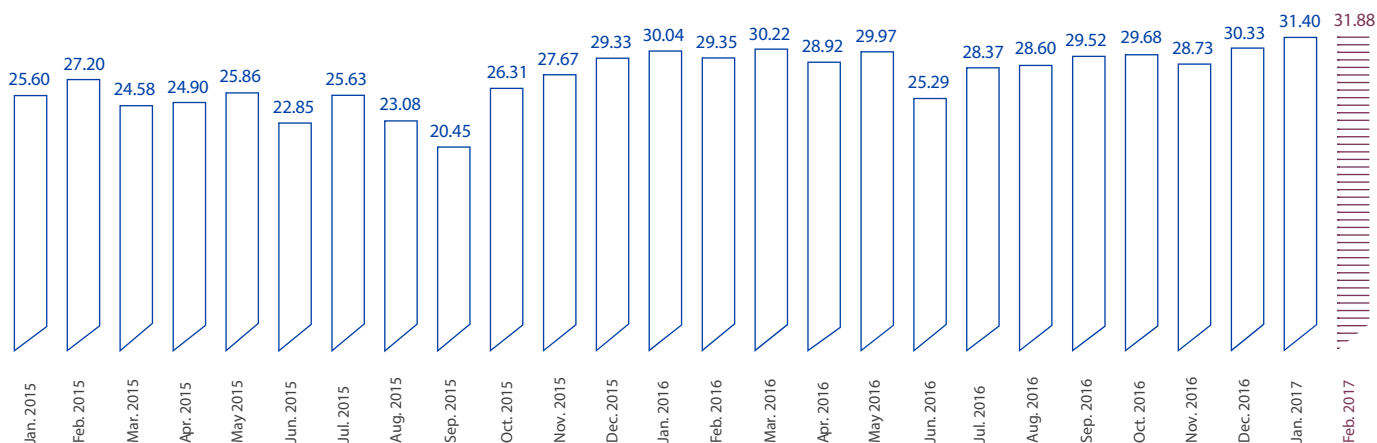
April 27, 2017

#### Dividend payment

May 5, 2017

## PLASTIC OMNIUM SHARE PRICE

end of month (in €)

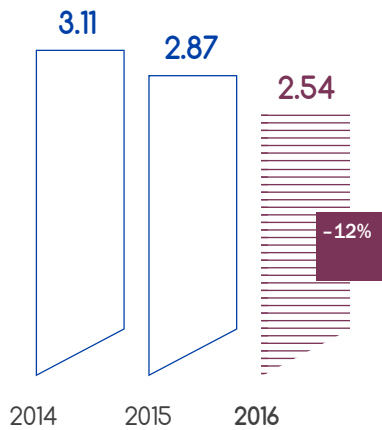




# CSR PERFORMANCE

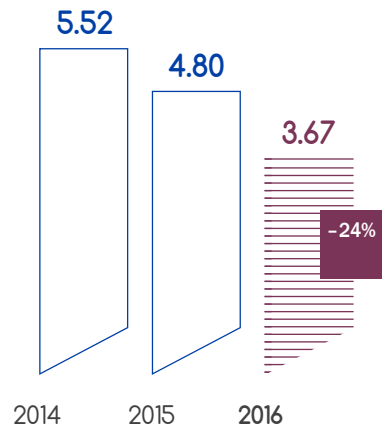
## WORKPLACE ACCIDENT FREQUENCY RATE WITH LOST TIME – FR1

in number of accidents per million hours worked.



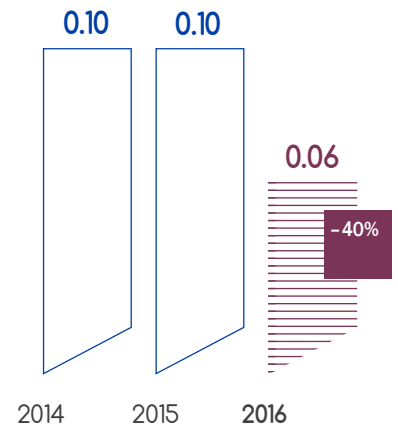
## WORKPLACE ACCIDENT FREQUENCY RATE WITH AND WITHOUT LOST TIME – FR2

in number of accidents per million hours worked.

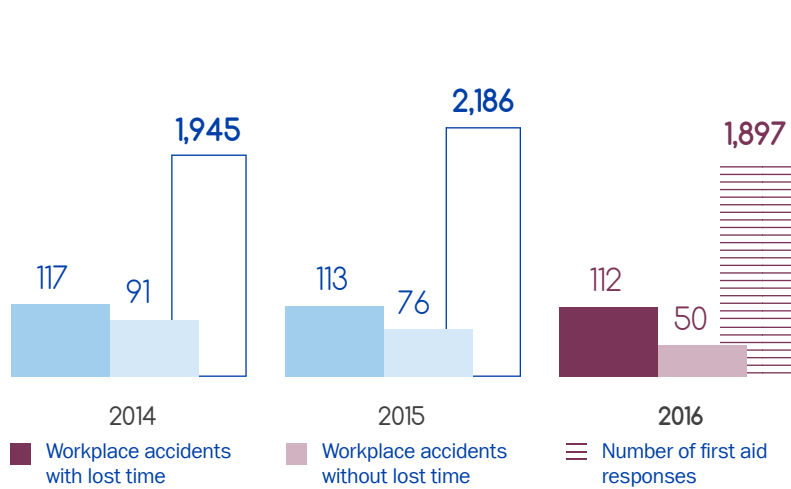


## WORKPLACE ACCIDENT SEVERITY RATE – SR

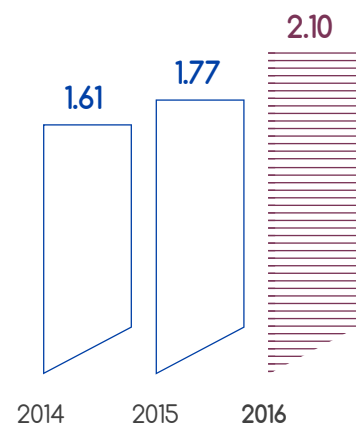
in days lost due to accident per thousand hours worked.



## ACCIDENT EVENTS

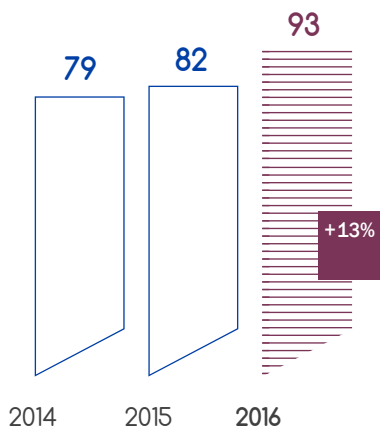


## NUMBER OF TOP SAFETY INSPECTIONS PER EMPLOYEE PER YEAR

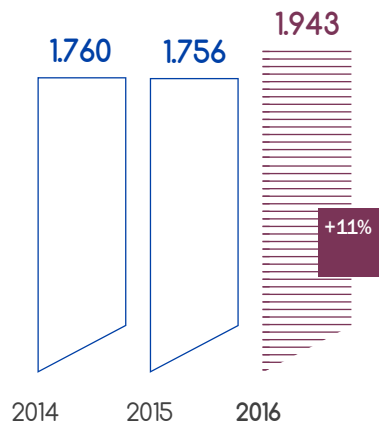


The Safety indicators cover Plastic Omnium Group employees and temporary workers.

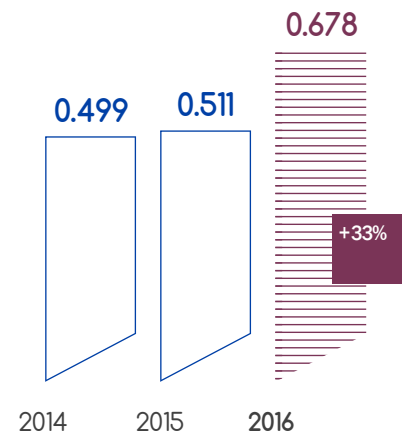
### NUMBER OF ISO 14001-CERTIFIED SITES



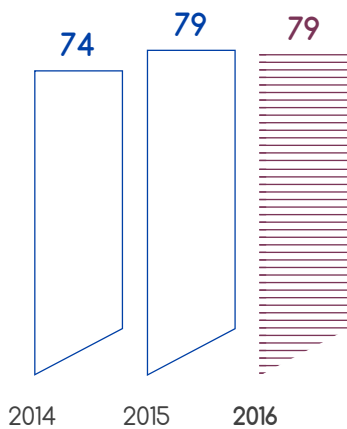
### ELECTRICITY CONSUMPTION IN KWH PER KG OF PROCESSED MATERIAL



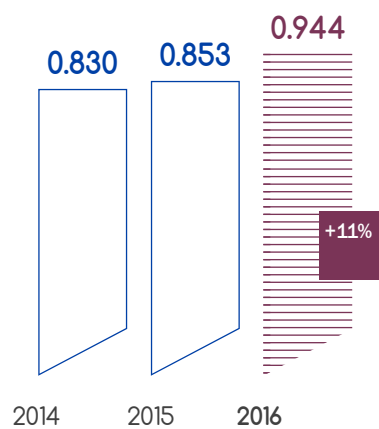
### GAS CONSUMPTION IN KWH PER KG OF PROCESSED MATERIAL



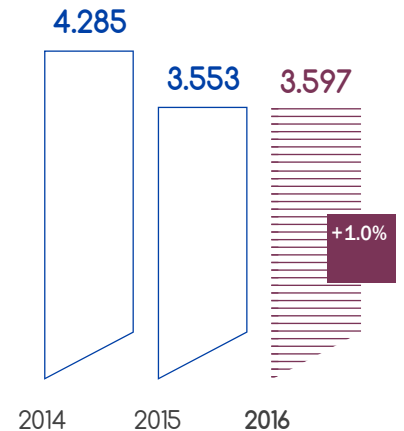
### NUMBER OF OHSAS 18001-CERTIFIED SITES



### GREENHOUSE GAS EMISSIONS IN KG OF CO<sub>2</sub> PER KG OF PROCESSED MATERIAL



### WATER CONSUMPTION IN LITERS PER KG OF PROCESSED MATERIAL



Significant changes in the scope of consolidation had a substantial impact on energy consumption in 2016.





A black and white photograph of a car's interior. The image shows a steering wheel in the foreground, partially obscuring the view. In the background, there is a window with a decorative frame consisting of a series of arches. The text "A NEVER-ENDING PASSION FOR ENTERPRISE" is overlaid in white, sans-serif capital letters on the lower half of the image.

A NEVER-  
ENDING  
PASSION  
FOR  
ENTERPRISE

THE HISTORY OF  
PLASTIC OMNIUM IS  
ONE OF SUCCESSIVE  
ENTREPRENEURS  
WHO HAVE EACH  
ADDED TO  
ITS LEGACY,  
AND A HISTORY OF  
THE AUTOMOBILE  
AS A SOURCE OF  
TRANSPORTATION  
THAT BRINGS  
PROGRESS AND  
DREAMS.

## 1946

ONE MAN AND HIS IDEA



Pierre Burelle founds Plastic Omnium, sets up his workshop in a Paris basement and heralds the all-plastic era under the motto "You can trust Plastic Omnium." History is to prove him right.



## 1963

### FIRST FACTORY IN LANGRES



Orders come in from companies like Renault, Bic, Philips, Jaeger and IBM. To meet the demand, Plastic Omnium builds a factory in Langres, eastern France. Some 250 technicians operating 35 presses meet exacting customer standards. The industrial adventure is under way – and so is the pursuit of excellence.

## 1950

### BETTING ON THE AUTOMOBILE

France revives and rebuilds after the Second World War; the 1950s are a time of innovation and Plastic Omnium is right in there. Bic begins the era of the disposable pen, Seb invents the pressure cooker and people drive 4CV cars. By the end of the decade, the automotive industry has become Plastic Omnium's leading customer.

## 1966

### THE MODERN ERA



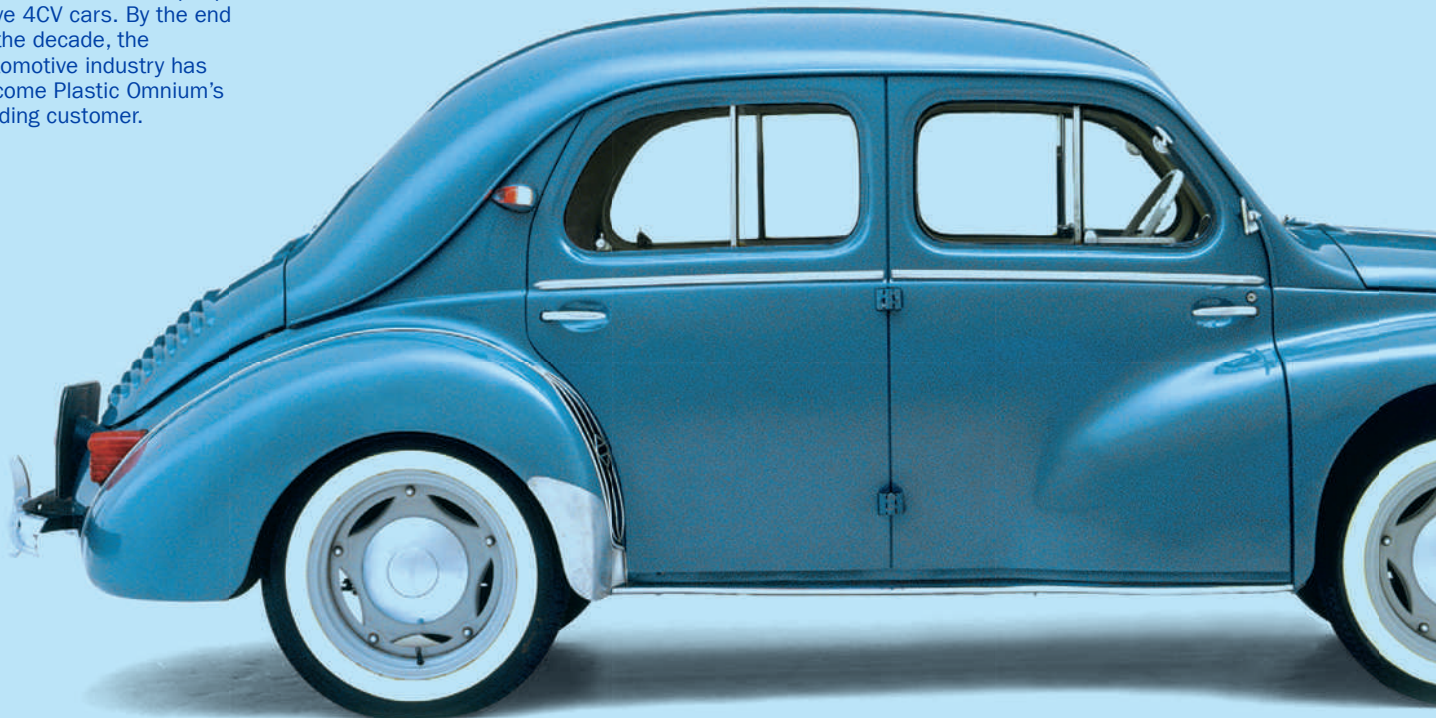
Television becomes ubiquitous, mass consumption reigns. Advertising shines a spotlight on brands to attract buyers. Like LU, Shell, BP and Alcan, Plastic Omnium asks Raymond Loewy to design its logo. He sees the infinite in its initials.

## 1968

### FIRST PLANT OUTSIDE FRANCE, IN SPAIN



The Common Market is 11 years old when customs duties are finally abolished among its six member states, boosting trade. But Plastic Omnium chooses a non-member state to set up its first factory outside France, following automakers to Valencia, Spain.



# 1980

## FIRST PLASTIC OMNIUM BUMPERS

The two oil shocks of the 1970s have a strong impact on the automotive industry, prompting manufacturers to rethink exterior components. Long sedans give way to compacts. Laboratories begin to focus on aerodynamics and specifications begin to include the term "Cd" (for drag coefficient). Plastic Omnium takes up the lightweighting challenge and puts its plastics expertise into practice with bumpers.



# 1986

## FIRST PLASTIC OMNIUM FUEL SYSTEMS



In a quest to reduce consumption in accordance with initial environmental legislation, automakers take a new look at propulsion systems. Plastic Omnium supports the move by producing efficient, lightweight plastic fuel systems. The automobile becomes its leading development focus.

# 1994

## FIRST PLANT IN THE UNITED STATES



The move to internationalize operations initiated in the 1960s becomes a strategic Plastic Omnium priority. Between 1987 and 2000, the Company builds nearly 40 plants outside France, stretching from Western Europe to Asia. The Group builds its first plant in the US, the world's leading automotive country, in Anderson, South Carolina.

# 2003

## LOOKING TO THE FUTURE



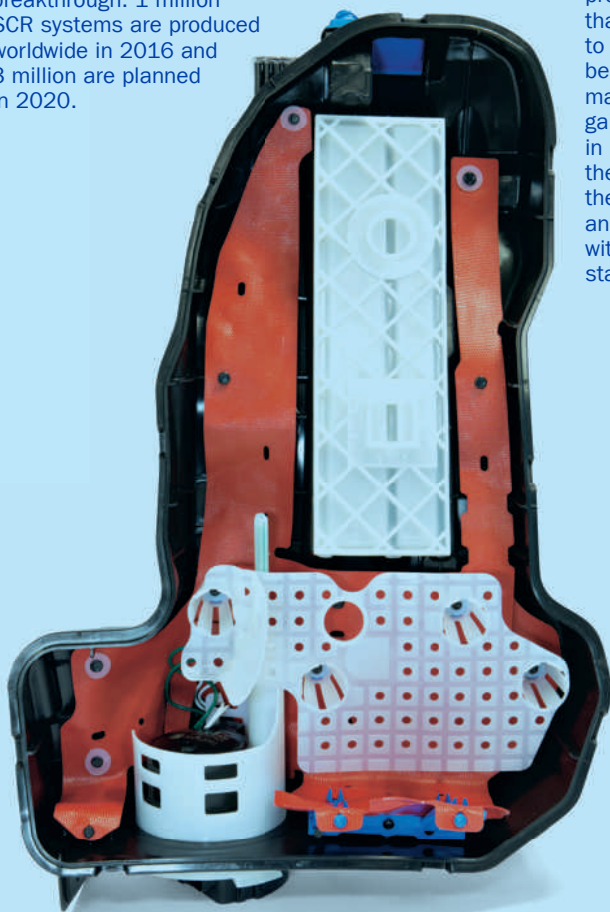
Innovation is the leitmotiv of the Plastic Omnium adventure and the main factor driving the Group's outstanding performance. The first international R&D center,  $\Sigma$ -Sigmatech, opens in 2003 and is now exploring smart materials. The second,  $\alpha$ -Alphatech, opens in 2014 and is pioneering pollution reduction. The third,  $\Delta$ -Deltatech, under construction in Brussels, will undertake work on new energy sources starting in 2019. The driving force for all is infinite innovation.



## 2004

### SCR, THE DECISIVE INVENTION

Plastic Omnium is now the world leader in plastic fuel systems. Regulatory pressures on emissions from diesel combustion prompts Plastic Omnium engineers to invent selective catalytic reduction (SCR) technology. This diesel pollution reduction system, for which 310 patents are filed, reduces NOx emissions by 95%. Its commercial success is commensurate with the technological breakthrough: 1 million SCR systems are produced worldwide in 2016 and 3 million are planned in 2020.



## 2006

### FIRST PLANT IN CHINA



In 2000, China accounts for 4% of world automobile production. By 2016, that share has risen to 29% and China has become the leading world market. Plastic Omnium gains a foothold in China in 2006 and 10 years later the Group has 26 plants there to serve international and local automakers with the Group's global standard of excellence.

## 2016

### A NEW GOAL



The Group's acquisition of Faurecia Auto Exterior and its strong organic growth raise Plastic Omnium's revenue to €7.5 billion. Already looking ahead to the €10 billion milestone by 2020, the Group initiates a proactive plan to achieve 60% growth in five years.



The background is a deep blue with a subtle, grainy texture. A bright, curved light streak arches across the upper portion of the frame. In the top left corner, there are dark, layered, curved shapes that resemble the edges of a book or a stack of papers. The overall aesthetic is clean, modern, and futuristic.

# PLASTIC OMNIUM, THE CURRENT AND FUTURE SOLUTION





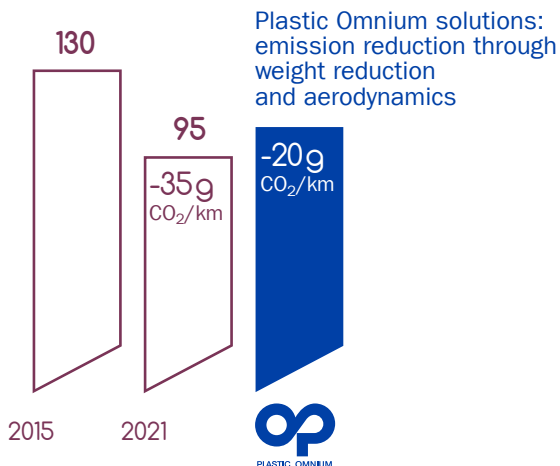


# PLASTIC OMNIUM MOVES TO REDUCE VEHICLE EMISSIONS ACROSS THE BOARD.

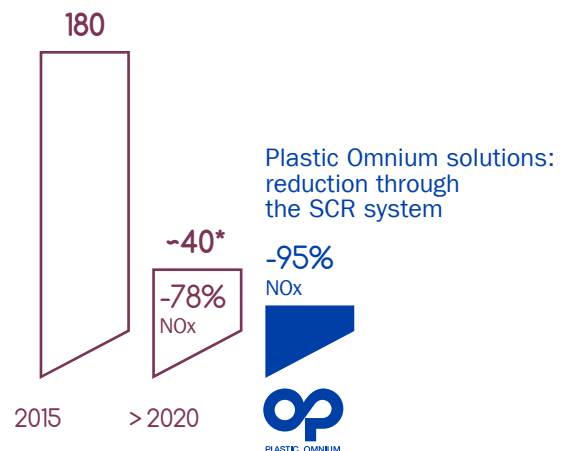
## Two businesses, a single challenge

In exterior products, the Group is focusing on two ways to reduce CO<sub>2</sub> emissions: weight reduction and aerodynamics. Taken together, its solutions will reduce vehicle weight by 200 kg. The move from metal to plastic had already reduced vehicle weight by 100 kg. The next 100 kg will come from better use of lighter-weight composite materials, mainly based on carbon, as well as the shape-memory materials that are revolutionizing aerodynamics. In propulsion, Plastic Omnium is supporting automakers' efforts to respond to regulatory pressures and introduce new types of energy. The Group's smart fuel systems improve vehicle energy efficiency in all types of engines. Its SCR solutions are helping to reduce diesel emissions and simplify life for motorists.

EUROPEAN CO<sub>2</sub> (g/km)  
EMISSION REGULATIONS



EUROPEAN NO<sub>x</sub> (mg/km)  
EMISSION REGULATIONS



\* Definition under way



# OUR INNOVATIVE SOLUTIONS

## EMISSION REDUCTION AS A PRIORITY



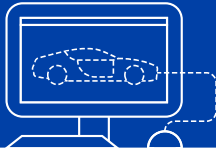
New materials to reduce vehicle weight



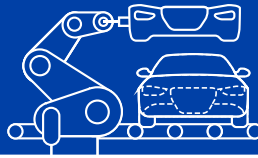
Improved aerodynamics to save energy



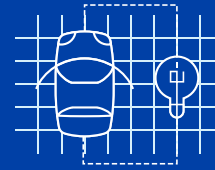
Smart pollution reduction systems to meet tighter standards



Materials to enable design freedom



Materials to customize shape, adapted to mass production



Greater creativity in vehicle and lighting styling

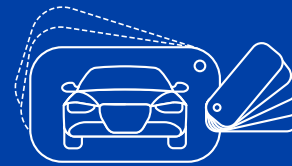
## SOLUTIONS TO SUPPORT THE CAR OF THE FUTURE



Increasing use of driver assistance systems



New energy storage systems to support the transition to new energy sources



Increased vehicle modularity

# Lightweighting, aerodynamics and design

This is the winning trio for the exterior products of the future and these are Plastic Omnium's three fields of expertise. The Group builds on its plastics and composite materials expertise to design and produce products that are both lightweight and structurally strong, and to expand the potential of such products as bumpers, fenders, tailgates, spoilers and B-pillars.

Motorized parts and modules and the shape memory alloys that have been used in the aerospace industry for decades have now made a resounding entry into the automobile sector. The LightAir bumper, for example, incorporates aerodynamic systems that open up the front grille, lower the spoiler, and streamline the shape of fenders to reduce energy consumption.

All these materials also offer the major benefits of unrivaled forming flexibility and substantial design freedom to set the vehicle apart and support infinitely customized models.



# 1.5 L/100 km

The fuel savings  
with Plastic Omnium's  
solutions.





### FROM SAFETY TO INTELLIGENCE, REINCARNATION OF THE BUMPER

The bumper has come a long way from its initial role of protecting passengers. It was re-designed to protect pedestrians in a collision and then became a lightweight but robust style component. Now it has taken on a new technology dimension and become part of the move to the smart—and soon self-driving—vehicle.







## The complex multipurpose module is the focus of our businesses

As the automotive industry moves into the connected and communicating smart car era, the purpose of the bumper is gradually changing. With backup cameras, the bumper is becoming the eyes of the vehicle, through sensors, radar and on-board lasers. Plastic Omnium offers the full range of expertise required to integrate these technologies with great precision into robust bumpers that protect the new functions and their operation in all terrains and all weather conditions.

In the rear, the tailgate is also becoming smarter. It now includes aerodynamic com-

ponents such as spoilers and all sorts of standard equipment such as the rear window, rear lights, license plate and contact-free opening.

The complex module for the future also includes paint that captures energy and changes color, and new materials that melt ice to ensure operation of on-board radar in freezing conditions. The module also incorporates stylistically innovative lights. Integrated LEDs beautifully highlight the make's design and sooner or later they will signal a completely silent electric vehicle.



**Higate Premium, a showcase of Plastic Omnium's premium vehicle expertise.** In world motor show venues such as Frankfurt, Detroit and Paris, the full-scale mock-up of the tailgate of the future showcases Plastic Omnium's full range of technology solutions. It incorporates recycled carbon composite that cuts a further 2 kg from the weight of the car body. Overall, the tailgate is 50% lighter than equivalents in metal. It also pioneers functional integration. Its four-way articulated spoiler adapts to driving conditions, pushes the aerodynamic envelope

and improves roadholding. A presence detector activates the contact-free tailgate opening system, demonstrating that plastics are electromagnetically transparent. The fiberoptic fabrics incorporated within the tailgate create a novel luminous signature that will attract automakers seeking a way to stand out and inspire the most demanding designers.



# 36

patents were filed  
for the multifunctional  
Higate tailgate.



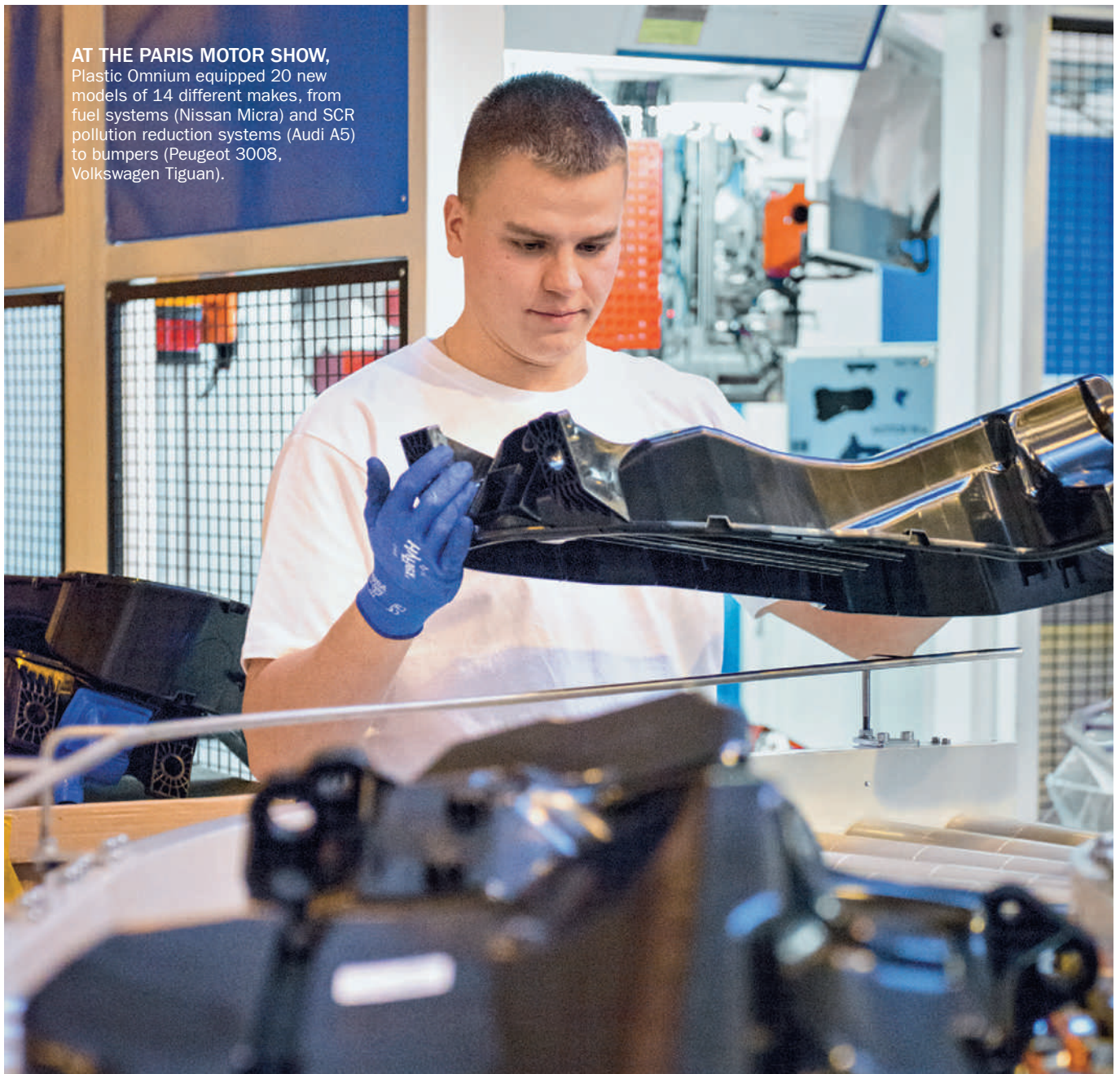


**CRAIG OLDHAM, PROGRAM DIRECTOR FOR THE UK,**

manages projects that are ever more complex and diverse. Component design is increasingly sophisticated and modules incorporate a growing number of functions. The development of these products raises new challenges, but Plastic Omnium's structured approach to project management has proved equal to them. It ensures successful product launch and the excellence that automakers – first and foremost Jaguar Land Rover – require.



**AT THE PARIS MOTOR SHOW,** Plastic Omnium equipped 20 new models of 14 different makes, from fuel systems (Nissan Micra) and SCR pollution reduction systems (Audi A5) to bumpers (Peugeot 3008, Volkswagen Tiguan).



## UNDERSTANDING ELECTRIC PROPULSION



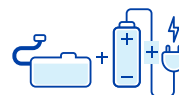
### 01. Mild hybrid

A mild hybrid electric vehicle (mHEV) does not actually drive in full electric mode. The electrical system, combined with the combustion engine, recovers energy by regenerating braking for a boost during acceleration.



### 02. Full hybrid

When people use the term “hybrid,” they usually mean a full-hybrid electric vehicle (HEV). These can be driven with either of the two different drives – electric or internal combustion – or with a combination of both. The full hybrid can drive a few kilometers in pure electric mode.



### 03. Plug-in hybrid

The plug-in hybrid electric vehicle (PHEV) is a full-hybrid that can be charged by plugging it into an external power source. Their batteries have larger capacities, allowing for them to be driven in all-electric mode for longer. The purely electric driving range covers from 40 to 60 kilometers.



### 04. All-electric

The battery electric vehicle (BEV) represents the ultimate step for e-mobility, because an internal combustion engine is no longer needed.



# The full range of solutions now on offer from Plastic Omnium

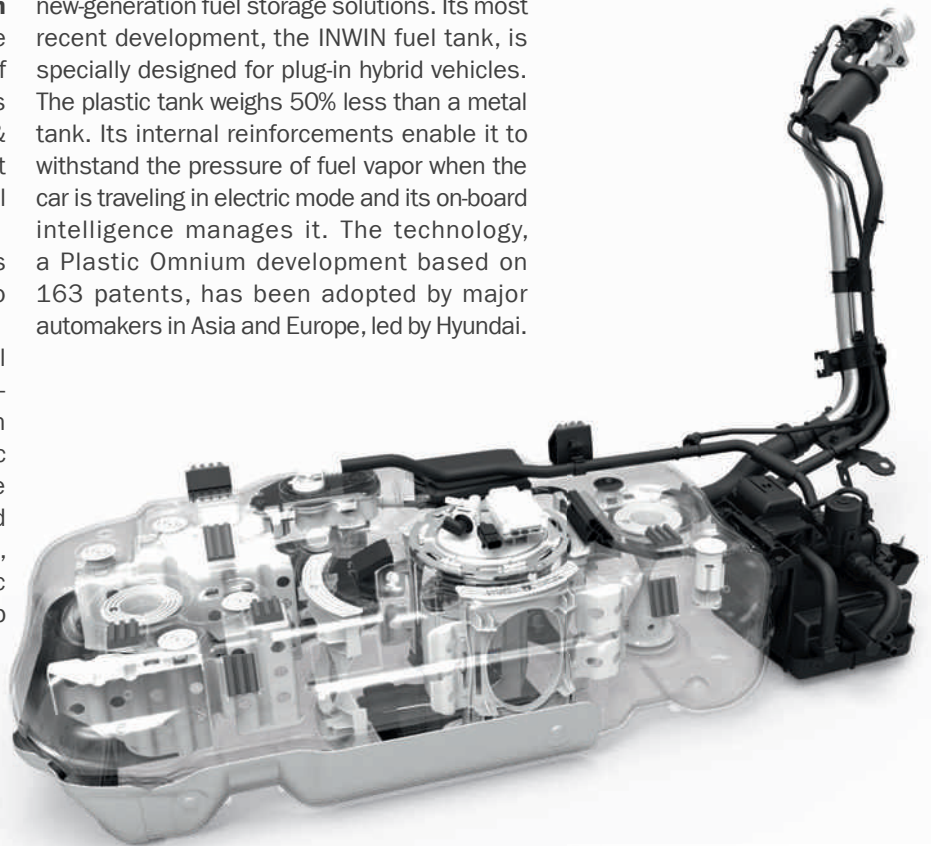
**From gasoline and diesel, to hybrid and plug-in hybrid vehicles,** Plastic Omnium has a suitable solution for every technology and every level of electrification. The mild hybrid system is coming into increasing use with the Stop & Start system. The technology saves energy but it also generates sloshing noise due to fuel movement in the tank in silent mode. Plastic Omnium's INBAFFLE range of products reduces system noise in a novel approach to acoustics that reinvents comfort.

The Group has equipped more than 20 full hybrid models and is helping to introduce all-electric driving over short distances. Plug-in hybrid opens prospects for 100% electric driving over long distances and is a genuine success. It is expected that 5.5 million hybrid cars will be sold around the world in 2020, compared with 2 million in 2015. Plastic Omnium is also helping automakers develop

new-generation fuel storage solutions. Its most recent development, the INWIN fuel tank, is specially designed for plug-in hybrid vehicles. The plastic tank weighs 50% less than a metal tank. Its internal reinforcements enable it to withstand the pressure of fuel vapor when the car is traveling in electric mode and its on-board intelligence manages it. The technology, a Plastic Omnium development based on 163 patents, has been adopted by major automakers in Asia and Europe, led by Hyundai.

# -9 kg

is the reduction in weight achieved with the INWIN plastic fuel tank in comparison with 17 kg for its metal equivalent. It reduces emissions by 0.9 g CO<sub>2</sub>/km.



**Plastic Omnium's pollution reduction systems provide an optimal solution pending the development and adoption of alternative propulsion systems.**

Clean diesel is gaining ground. Selective catalytic reduction (SCR) is to date the most efficient technology for eliminating nitrogen oxides (NOx) emitted by diesel engines. The DINOx solution developed by Plastic Omnium

reduces NOx by 95%. Patented in 2004 and produced from 2008, it has since been adopted by 13 major automakers around the world and is gaining ground as a way to meet environmental standards.



# 1 million

Number  
of SCR systems  
sold by Plastic Omnium  
in 2016.



**BEATRIZ MONGE-BONINI, BIOCHEMICAL ENGINEER,**

was a life sciences researcher before turning to applied research and tackling the clean fuel challenge at Plastic Omnium. The scientific complexity of the issue calls for a multi-disciplinary approach. She brings expertise in chemistry, biochemistry and biotechnology to a team covering many different fields that she feels is developing new and very promising knowledge.



## And tomorrow, all-electric?

**Announced 15 years ago**, the electric car still accounts for only 1% of the world market. Outside a number of pioneering regions such as California, it will take at least another decade for the all-electric dream to begin to come true. In Europe in 2030, only one in eight vehicles will be electric according to forecasts. In other words, the energy sources now in use will continue to account for 84% of vehicle propulsion systems, and Plastic Omnium's solutions will continue to meet 84% of requirements. Nevertheless, Plastic Omnium's taste for innovation and commitment to providing automakers with long-term support are prompting the Group to take an interest in electric mobility.

**One by one, the automakers are releasing the brakes** on electric vehicles. Battery range is increasing, charging stations are sprouting up in cities and the price of electric vehicles is approaching competitiveness. Plastic Omnium is betting on the electric vehicle using hydrogen and fuel cells. The way it works is straightforward: instead of

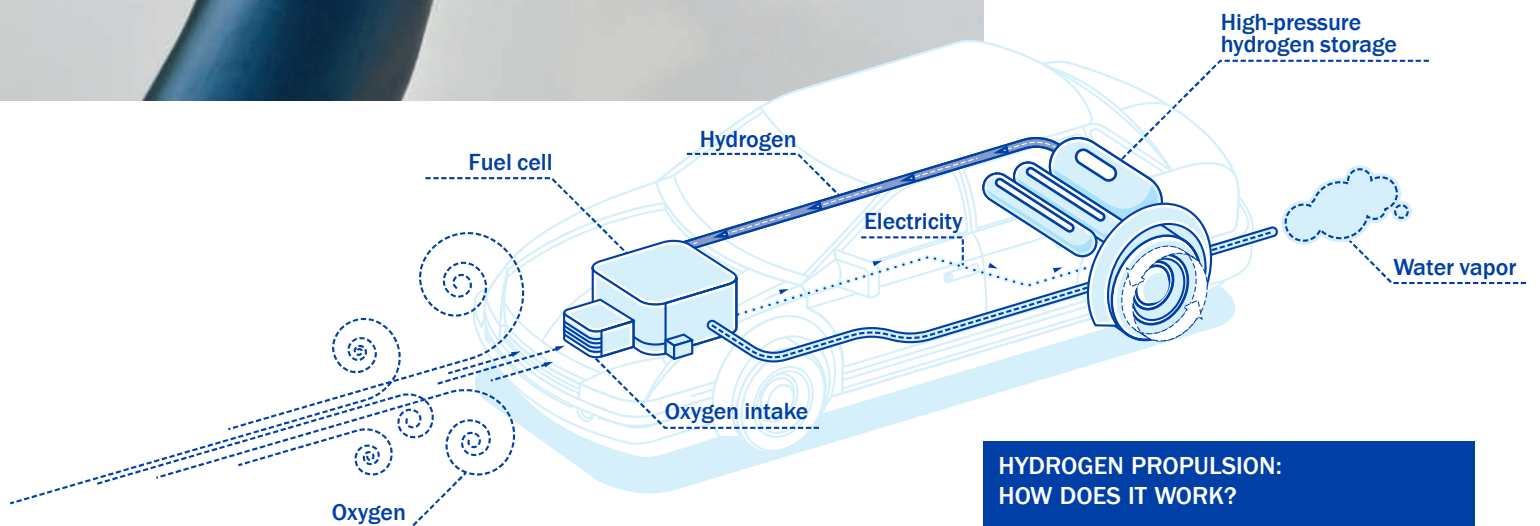
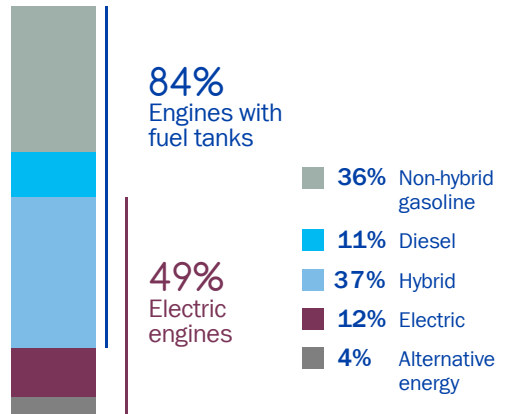


charging the vehicle with electricity and storing power in batteries, the vehicle generates its own electricity. At the Paris Motor Show, the Group unveiled its prototype hydrogen tank and described its advantages: it takes only three minutes to fill up for a range of up to 600 km. For Plastic Omnium, the electric vehicle has already arrived.

# 12%

## share of electric vehicles in new vehicle sales in Europe in 2030

(BIPE study, January 2017)



**HYDROGEN PROPULSION:  
HOW DOES IT WORK?**



## Plastic Omnium Environment devises the high-quality city of the future

**As a result of rampant urbanization** and current consumption patterns, waste management is a major challenge for large urban areas. All over the world, legislation is mandating reduced waste generation by individuals and businesses and recovery and recycling of a maximum amount of waste to give it a second lease on life. The main waste management issue is sorting. The more carefully waste is sorted upstream, the less work goes into “re-sorting” it downstream. Sorting quality determines waste quality. This is the new rule of thumb for the city of the future.

**A qualitative change.** Waste has a future. Household waste can be transformed into useful compost, used office paper can be recycled into new paper, ink cartridges can be refilled. Sorting converts waste from residue into material and from a cost to a resource, opening up prospects for a circular economy. Better sorting also reduces the quantity of nonrecyclable waste that must be incinerated or landfilled, and this in turn improves the quality of the environment.





### 225 containers for Ghent, Belgium.

The city of Ghent has undertaken a proactive environmental program designed to encourage its 10,000 inhabitants to sort waste at voluntary waste drop-off points. The city awarded the contract to supply and service the 225 dedicated underground containers to Plastic Omnium. The computer management system will directly invoice users for residual unsorted waste.

**Organic waste on the test bench.** Plastic Omnium is equipping pilot cities: experimental composting facilities will be tested in shared gardens in Paris and anaerobic digestion will be tested in nine Madrid neighborhoods and at major producer premises at the end of 2017. If successful, the operation will be rolled out across Madrid by 2020.

# 55%

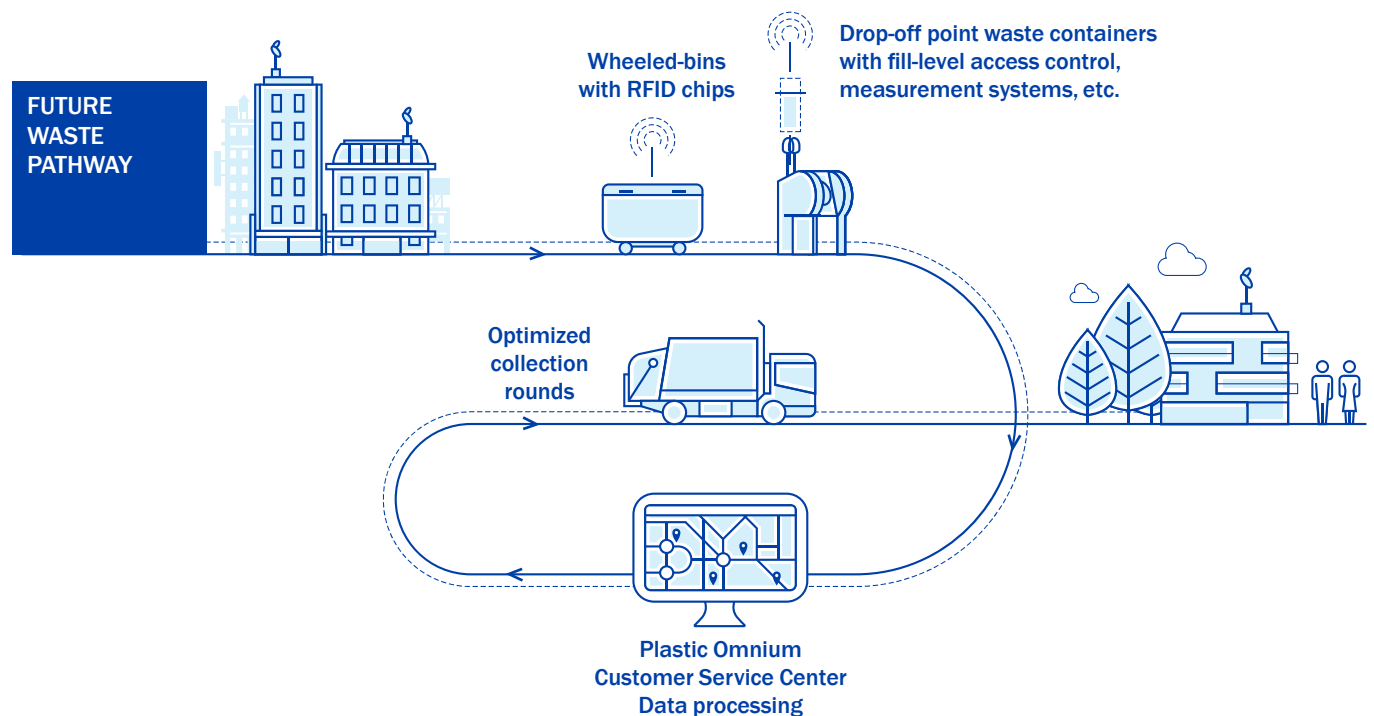
materials recovery  
by 2020 is the target  
set in France's  
energy transition law.

# Mobilizing citizens: waste management in the digital age

Plastic Omnium supplies 5,000 cities around the world with a constantly updated range of solutions designed to meet emerging environmental challenges and use digital potential. Waste containers customized to fit the residential configuration are buried in densely populated areas and semi-buried in rural areas. Containers are fitted with low-noise wheels, dual-stream bins introduce two-in-one waste collection, special containers store organic waste in the kitchen and organic filter bins initiate composting next to apartment buildings. The mobile and modular OPTRI® concept encourages voluntary drop-off in cities and sorting by citizens.

All products and equipment are becoming smart. They contain chips and sensors to identify the waste or the user, track bin waste levels and optimize collection rounds.

Unveiled at the Pollutec 2016 exhibition in Lyon, Plastic Omnium's mobile app project will offer inhabitants new services, with one-click geolocation of collection points for the different types of waste, bin fill levels, day of bulky waste collection and recipes for high-quality compost. All data is processed in real time by the Plastic Omnium Customer Service Center to help our customers optimize waste management and improve recycling and the quality of the city of the future.





**OLIVIER SCHMIDT, DIRECTOR OF INNOVATION  
AND DIGITAL TECHNOLOGIES AT PLASTIC OMNIUM ENVIRONMENT,**

explores ways to manage waste going forward, from recyclable bins that never generate waste to smart voluntary waste drop-off systems and applications that encourage waste sorting. Plastic Omnium's approach to innovative business is to seek out all sources of innovation within the Division and the Group and outside it.

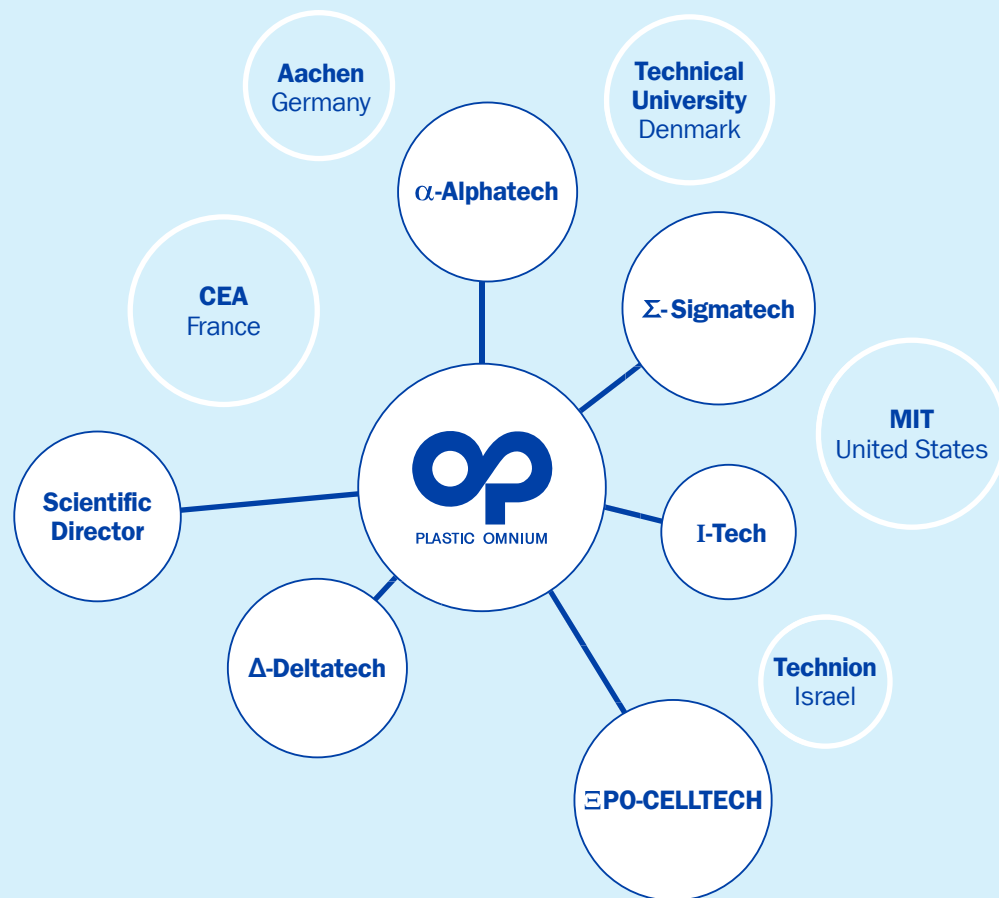


THE INFINITE  
FUTURE  
IS HERE









## A GLOBAL RESEARCH ECOSYSTEM



Building on its 23 R&D centers, its 128 state-of-the-art manufacturing plants and its 3,500 creative and engaged engineers (half of whom work outside France), Plastic Omnium has made innovation the key driver of its performance and customer loyalty. In addition,

it has forged partnerships with universities and research centers in France, Germany, Israel, Denmark and the United States, and it funds innovative startups. These initiatives illustrate Plastic Omnium's open approach to a changing world and take the Group into the era of safer, cleaner cars.





**RONAN STEPHAN, EXECUTIVE VICE-PRESIDENT  
AND SCIENTIFIC DIRECTOR OF PLASTIC OMNIUM,**

has joined the Group at a turning point in the automotive industry and to coordinate critical innovation projects. He closely tracks major long-term trends such as hyperconnectivity and self-driving technology and focuses on such things as technological experiments and zero emissions. Because he knows that advanced innovation requires thinking outside the box and calls for vision, perseverance and cooperation, he builds bridges between the Company and the scientific community.

# $\Sigma$ -Sigmatech and $\alpha$ -Alphatech drive automotive science

Plastic Omnium's R&D strategy is currently based on two international centers that focus on reducing polluting emissions and exploring the major automotive sector trends.

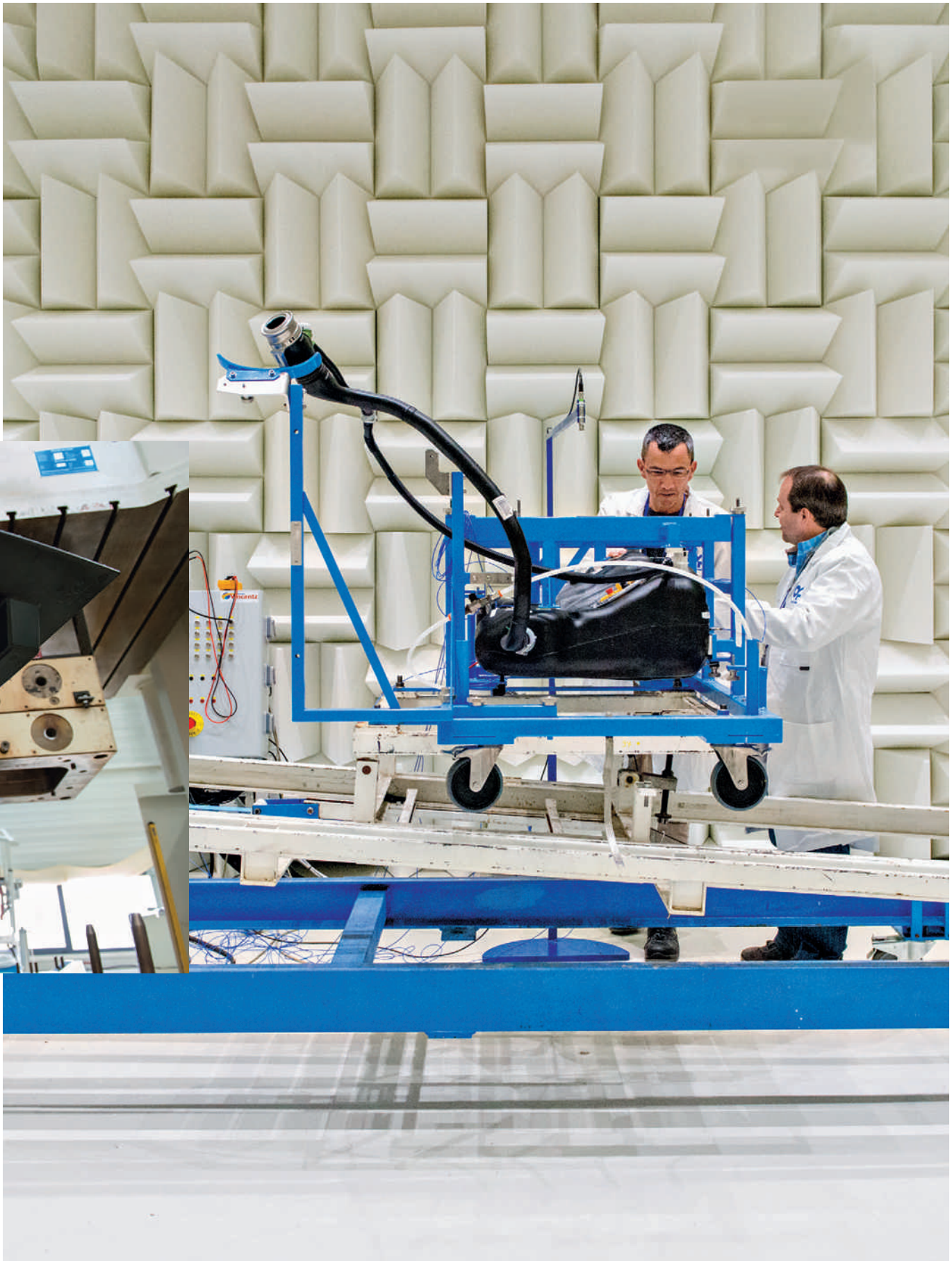
The first,  $\Sigma$ -Sigmatech in Lyon, France, is dedicated to exterior products and composite materials. Its 500 engineers are pushing the boundaries of vehicle weight reduction, developing shape memory materials for the automobile, and revolutionizing lighting and paint systems.

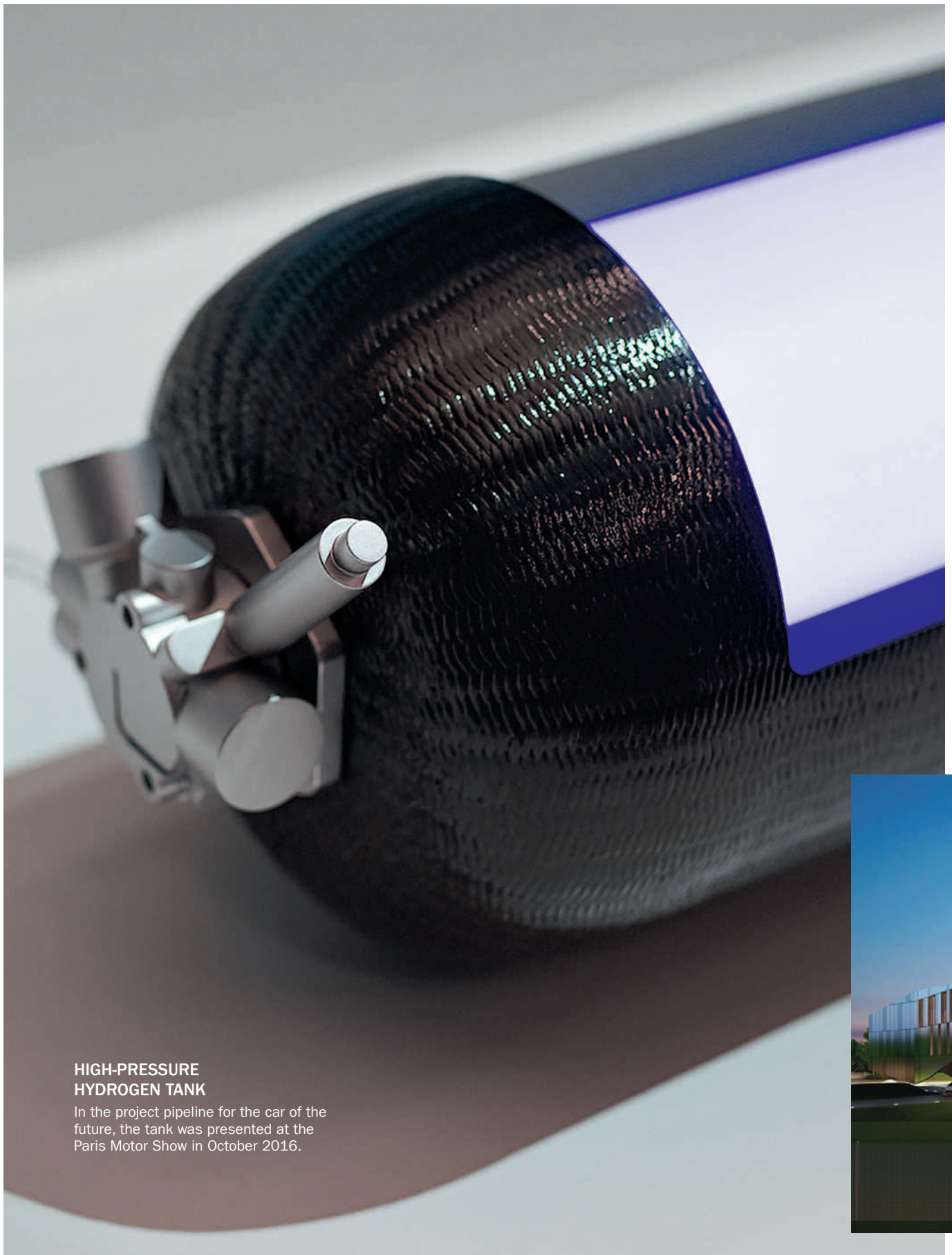
Plastic Omnium's second international R&D center,  $\alpha$ -Alphatech in Compiègne, France, focuses on fuel systems for all types of propulsion and on pollution reduction systems for diesel vehicles. The center's 500 employees use state-of-the-art equipment to invent storage systems for new sources of energy, pressurized fuel tanks for hybrid vehicles, and ways to attenuate the fuel sloshing noise that currently occurs in hybrids when switching to silent electric mode.



$\Sigma$ -Sigmatech and  $\alpha$ -Alphatech carry projects through to maturity on their pilot line and optimize the launch of just-in-time production across all Group plants. The two centers of excellence work in real time with 21 development centers located close to customers. The entire system supports the manufacturing plants and works with them to better serve the automakers.







### HIGH-PRESSURE HYDROGEN TANK

In the project pipeline for the car of the future, the tank was presented at the Paris Motor Show in October 2016.





# Hydrogen propulsion, a wager on the future

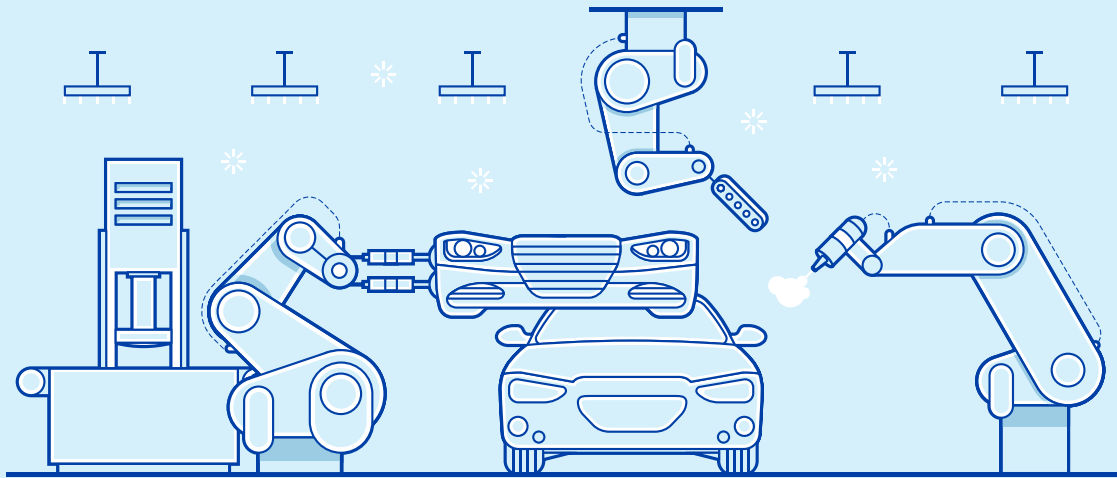
**What if the next breakthrough is the fuel cell?** At the Paris Motor Show, Plastic Omnium unveiled a surprise – a novel design for a cylinder that is in fact a prototype high-pressure hydrogen storage tank that can ensure a range of 600 km and can be charged in a record three minutes, in contrast to the several hours it takes to charge today's electric vehicles. The associated fuel cell, which will use the hydrogen to generate electricity and provide the long range for the vehicle, remains to be invented.

**Plastic Omnium is gearing up for the move to electricity.** It formed a tie-up with ELBIT Systems, run by young doctoral students looking for breakthrough fuel cell and supercapacitor solutions, to set up a dedicated startup,  $\Xi$ PO-CELLTECH, and a common research center in Caesarea, Israel. They will interface with Plastic Omnium's third research center,  $\Delta$ -Deltatech. The center, in which the Group is investing €50 million, will be entirely dedicated to fundamental research on new energy sources and will open in 2019 in Brussels. It will employ 200 engineers. Plastic Omnium believes that the progress made over the coming two decades will surpass the progress of the past century. It is therefore pursuing a variety of research avenues in cooperation with the Alternative Energies and Atomic Energy Commission in France (CEA); MIT in the United States; the Israeli Institute of Technology, Technion; and the Technical University of Denmark. Plastic Omnium is becoming a multiple-energy operator able to accommodate automakers' propulsion choices and the specific features of local automobile markets.



# 3 minutes

is the average amount of time it takes to fill a vehicle with hydrogen to cover a range of 600 km.



## INDUSTRY, THE EXCELLENCE MACHINE

**58**  
paint  
lines

**481**  
injection  
presses

**145**  
blow-molding  
machines

**1,200**  
robots

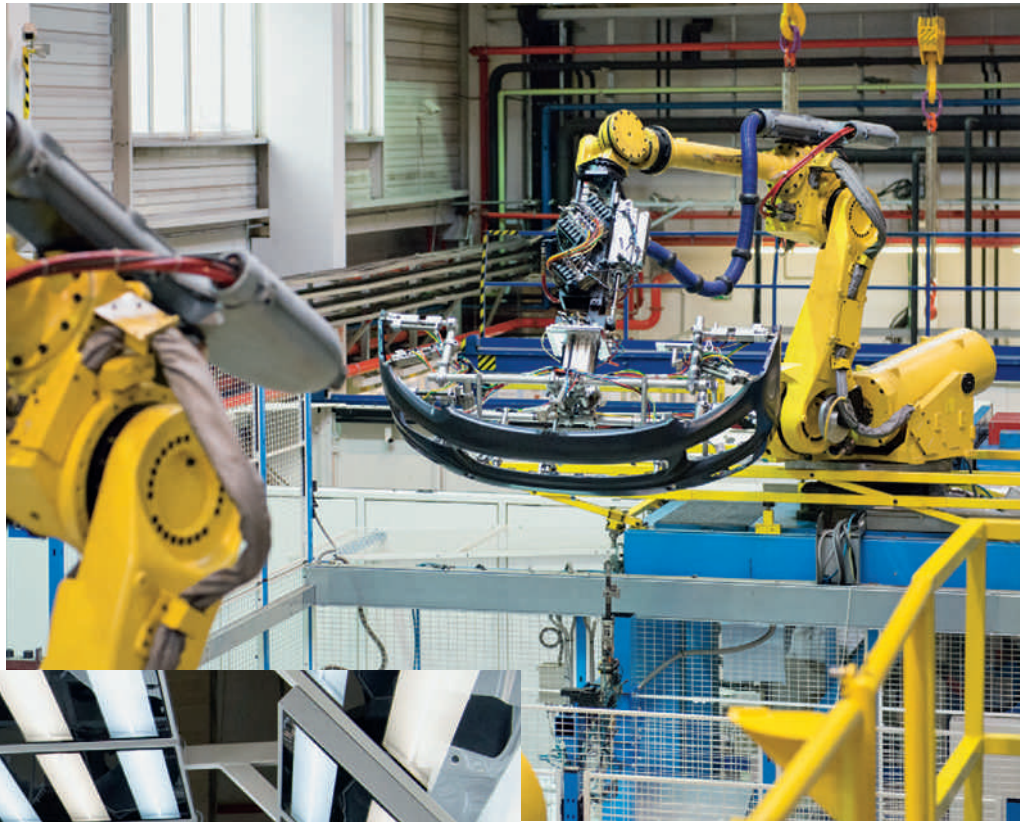
### **The highest standards**

Plastic Omnium globalized as it followed automakers to all continents. The Group now manufactures parts for 70 automobile brands at 128 plants spread across 31 countries. Process automation and state-of-the-art technologies combine with constant operational excellence to ensure that Plastic Omnium products meet the highest standards.

### **Just-in-time operation**

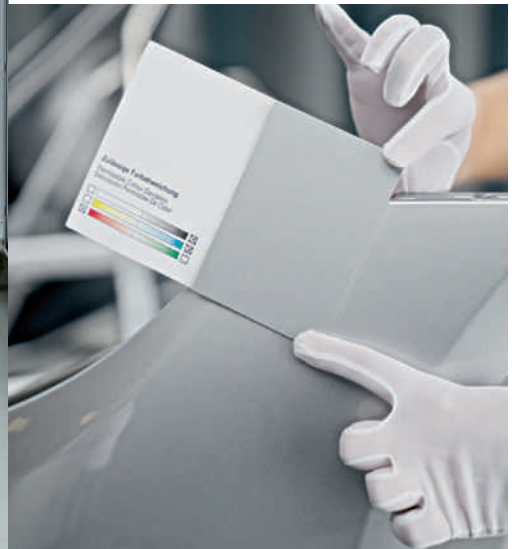
In 2016, Plastic Omnium launched 160 new models, started a new production run every 36 hours, and kept to an average lead time of four hours between order placement and delivery to the customer. This feat earned the Group in 2016 the Global Contribution Award, Toyota's top supplier honor. The €2.5 billion in capital equipment that Plastic Omnium plans to invest between now and 2020 will guarantee this industrial excellence over the long term.





### GLOBAL HIGH-TECH PLATFORMS

Whether for painting or blow molding, automated processes and computer-based management systems ensure full control over highly complex modules and just-in-time programs, enabling operators to focus on meeting exacting quality standards.



# Plastic Omnium rolls out its high standards wherever its customers are based



## WORLD AUTOMOTIVE MARKET: 90 MILLION

Production raised by 35 million over the last 15 years

World automobile production increased from 55 million vehicles in 2000 to 90 million in 2016. The biggest change in the sector was geographical, with the emergence of the Chinese market.

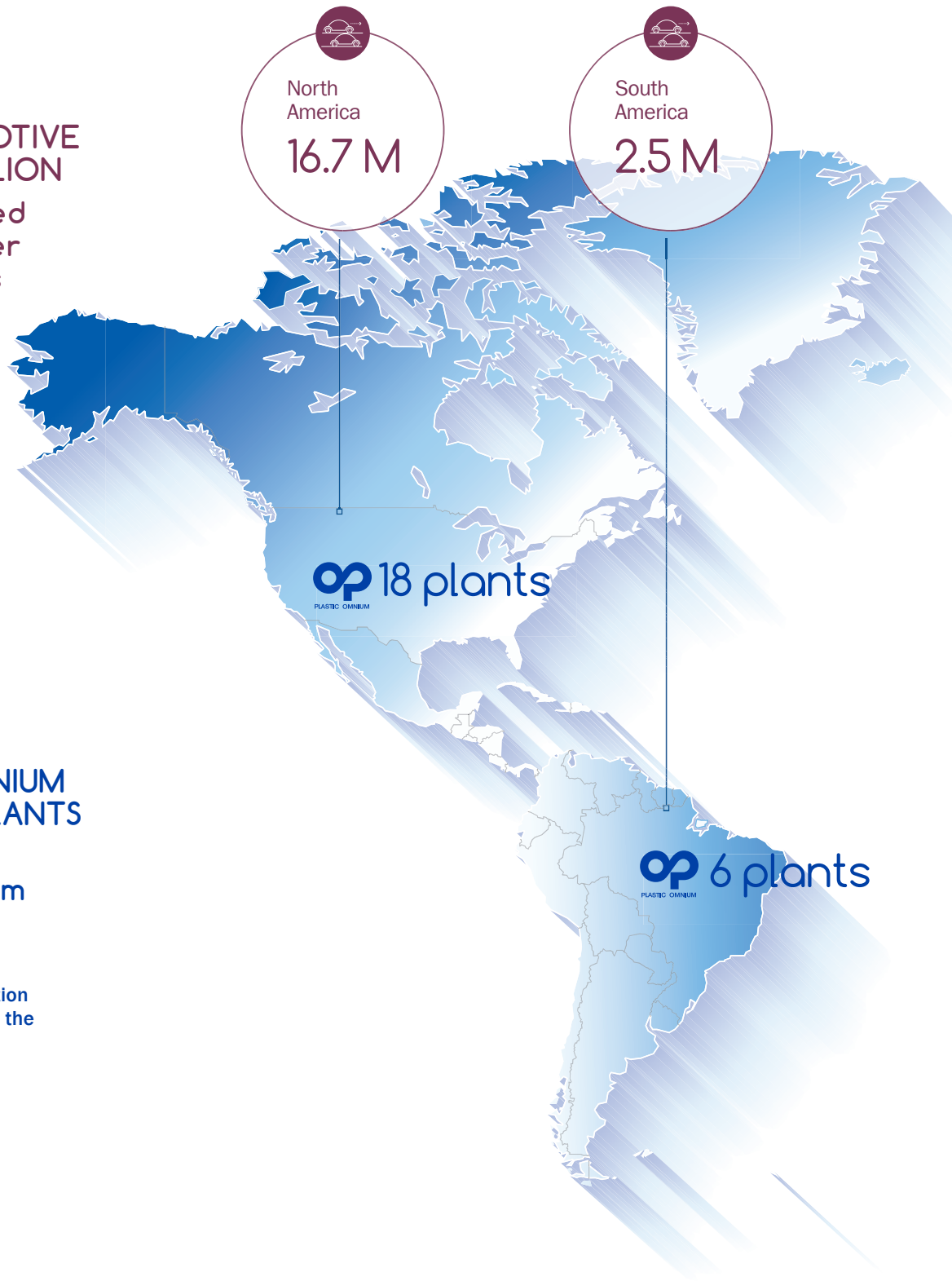


PLASTIC OMNIUM

## 122 PLASTIC OMNIUM AUTOMOTIVE PLANTS

The number of Plastic Omnium plants doubled in 15 years

Their geographical distribution reflects the major trends in the automobile industry.







# 15 years of CSR measures in the plants

Initially focused on health and safety, the approach has broadened to Corporate Social Responsibility and, for Plastic Omnium, is a key part of operational excellence.

## 2001

### Employee safety

Measurement tools, a management system and the recruitment of H&S specialists produce immediate progress.

### ISO 14001

110 plants are environmental management certified in 15 years.

## 2002

### Non-financial reporting

Plastic Omnium publishes its first HSE/HR indicators: safety first, reflecting the longstanding priority.

## 2003

### Global Compact

Plastic Omnium joins the United Nations Global Compact.

## 2006

### Asset safety

Attention to assets and the need to avoid interruption of just-in-time production is added to the work on employee safety. It starts with fire prevention and protection.

### OHSAS 18001

95 plants are certified in 10 years for their Health and Safety management. The Group is also certified for "central coordination of safety of people and assets."

## 2007

### Chemical risk

Introduction of a REACH management system.

## 2008

### CSR attitude

Plastic Omnium publishes its Code of Conduct and Code of Business Ethics.





## 2009

### Top Planet

The hunt for ways to save energy and cut CO<sub>2</sub> emissions is launched around the world.

### Professional CSR management is introduced

Plastic Omnium appoints a Risk Manager and draws up its risk map. In labor issues, a European Works Council is added to the French Works Council.

## 2013

### ISO 50001

23 plants are energy management certified in four years.

## 2014

### World Safety Day

A highlight of Plastic Omnium top management's commitment to safety, this annual event brings together all managers and employees around the world.

## 2015

### Customer CSR requirements

The CSR performance assessment required by customers structures areas for improvement.

## 2016

### The supply chain challenge

A CSR guide translated into 18 languages is circulated to suppliers and subcontractors and backed up by a compliance audit.



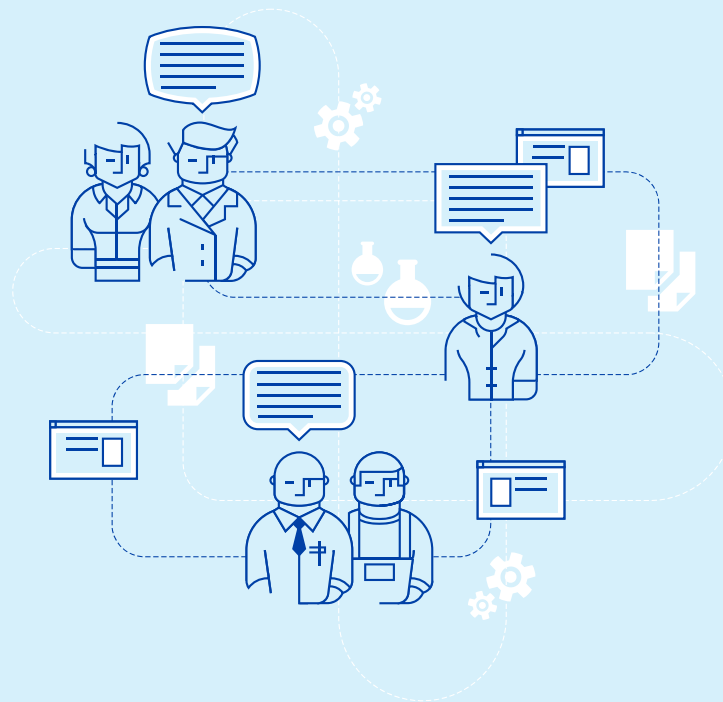
Tomorrow, Industry 4.0  
will take excellence to an  
even higher level





**Big data is data that has so far remained untapped.** Sensors are placed on equipment to collect large volumes of process information in real time. For example, 145 blow-molding machines produce between 5,000 and 10,000 data items per second. The system then structures the data, cross-references it and models it to predict what will happen, sound a warning, make corrections in real time to avoid the problem and thus eliminate rejects and the costs associated with non-quality.

**Plastic Omnium's goal is to double the performance of its plant and equipment.** Industry 4.0 reduces cycle time and thus inventories and investments, and produces more efficiently at lower cost. It is a collective program overseen by the Scientific Director and rolled out across all Group activities in test-and-learn mode to achieve a fast pace of improvement and involve all users. The US plant currently under construction in Greer, South Carolina, will be Plastic Omnium's 4.0 pilot plant.



## ENGAGEMENT, TO ATTRACT GOOD PEOPLE

Over  
**5,000**  
Faurecia  
employees  
welcomed

**30,000**  
participants  
in World  
Safety Day

**4,143**  
new  
hires

**-92%**  
reduction in FR2  
since 2003

### Lessons from the 2016 survey

Plastic Omnium's success depends on the engagement of its 33,000 employees. To review morale and motivation, the Group carried out a survey in 2016. The main conclusions can be summed up in three figures. The 95% participation rate says it all about the level of involvement. Work satisfaction rose 5% to reach 77% and the level of employee engagement was 42%.

### All Plastic Omnium managers

The first step in building motivation is a broad-scale leadership training program for all managers. It reviews the basics of the "PO Way" management style and provides the keys to individual and collective success. Tested in Japan and South Korea in 2016, the program is now being rolled out across all Group countries, businesses and teams.





**PLASTIC OMNIUM'S PEOPLE GIVE THEIR BEST WHEREVER THEY ARE IN THE WORLD.**

It's part of the Plastic Omnium culture to never be satisfied. That attitude encourages driving for excellence at all levels of the company, at every workstation, in all the production plants and offices, in all the research teams and development centers. That mindset makes each and every project a challenge and an infinite source of satisfaction.

# Attracting the best, around the world

## Spending time with new employees

The European authorities approved the acquisition of Faurecia Exterior Systems during the summer holiday period. But its employees were not left in the dark. On August 1, Laurent Burelle and the Executive Committee went to meet with the Faurecia employees in Weißenburg, Germany, the core of the acquisition scope.

The message was clear: “to welcome them to Plastic Omnium, explain who we are and what we expect of them.” These visits kicked off the “Welcome to PO Days,” a program of meetings at all levels, at which workers and managers, including shift workers, got together to become acquainted and talk. Each function is establishing a network and expertise is being transferred. This powerful integration process generated enthusiasm and the adhesion of the new staff, an excellent illustration of the “PO Way” management style – management with a human face.



# Over 5,000

employees joined Plastic  
Omnium in a single day.







### Experiencing the PO culture

Integration can be measured by the engagement of management at all levels. Every year, an Induction Seminar brings together more than 300 new hires from all countries. Development programs for managers, such as “Starter” for young talent or “Driving Success” for team managers, pass on the passion and values of Plastic Omnium. Proximity and respect for people are part of the family history. The culture focuses on solutions, hard work and a taste for outstanding performance, all part of the entrepreneurial adventure. Top management, up to and including the chairman, ask for and in return recognize good work, measured by the results. The “PO Way” is a very down-to-earth, straightforward approach.









# A safety meeting on a global scale

As a responsible industrial undertaking, Plastic Omnium sets safety as its top priority. Safety is key to all its processes, at all times and in each task. The focus on safety culminates in the Group's annual World Safety Day, which brings together all plant, research center and office staff throughout the world.

The third such event in 2016 shone a spotlight on ergonomics as a way to improve working conditions and safety. Laurent Burelle kicked off the day and the dialogue in a web conference involving three sites from the three divisions on three continents and 10,000 employees. The conference was live streamed to all sites around the world. All employees reviewed the non-negotiable safety rules and took an hour off work to participate in a safety-related event. The sites came up with their own initiatives and generated buzz on Twitter and LinkedIn.

The results reflect the Group's permanent safety mobilization. In 2016, the number of accidents declined 24% and the frequency rate FR2 came down to 3.67. This means one accident every two days instead of one accident per hour, the rate recorded in 2003.



# FR2 = 1

Target for 2020.



1, allée Pierre Burelle – 92593 Levallois Cedex – France  
Tel: +33 (0)1 40 87 64 00 – Fax : + 33 (0)1 47 39 78 98

[www.plasticomnium.com](http://www.plasticomnium.com)

#### COMPAGNIE PLASTIC OMNIUM

Incorporated in France with limited liability and issued capital of €9,148,603.20  
Headquarters: 19, Boulevard Jules Carteret – 69007 Lyon – France  
955 512 611 RCS Lyon – APE: 6420 Z

Plastic Omnium thanks all who contributed to this business review  
and the employees who participated in the photo reports.  
Plastic Omnium would particularly like to thank the Audi Communications Department.

This report is also available in French and on the [www.plasticomnium.com](http://www.plasticomnium.com) website.

Creation/writing/production:  **havas paris**.

English texts by ALTO International.

Photo credits: Céline Clanet/Interlinks Image. Justin Jin-Ningbo/Interlinks Image. Thomas Laisné/La Company.  
Maxime Guyon/Monsieur l'Agent.

A9 Conny Kurz, Damien Boquel, Jean-Pierre Durel, Didier Junger, Claude Lacourarie, Israel Malovani,  
Matthew Oliver, Sébastien Soriano for *Le Figaro*, Plastic Omnium photo library, GettyImages, all rights reserved.

Plastic Omnium has conducted all necessary research to obtain authorizations for the photographs published in this book.  
Anyone holding rights to these documents who has not been contacted is asked to make  
themselves known in order to make the necessary modifications.

This document is printed on FSC-certified Heaven 42 paper.

Printed in France – April 2017.







