



SOLVAY

asking more from chemistry®

Innovating for sustainable solutions

Pascal Juéry, Member of the Executive Committee

NEXT GEN meeting March 21, 2015

Solvay's Vision for Research & Innovation (R&I)

Lead Solvay into new growth territories

with breakthrough innovation in the field of sustainable chemistry



Deliver Value

Improve competitiveness & create new business opportunities thanks to

- Customer intimacy & market proximity
- Leverage of synergies within the Group
- Innovation excellence
- Eco-designed products

At the hearth of global innovation eco-system

Our researchers worldwide partner with academia, industrials, start-ups and venture capital to develop breakthrough solutions addressing global challenges

Lead Solvay into new Growth Territories

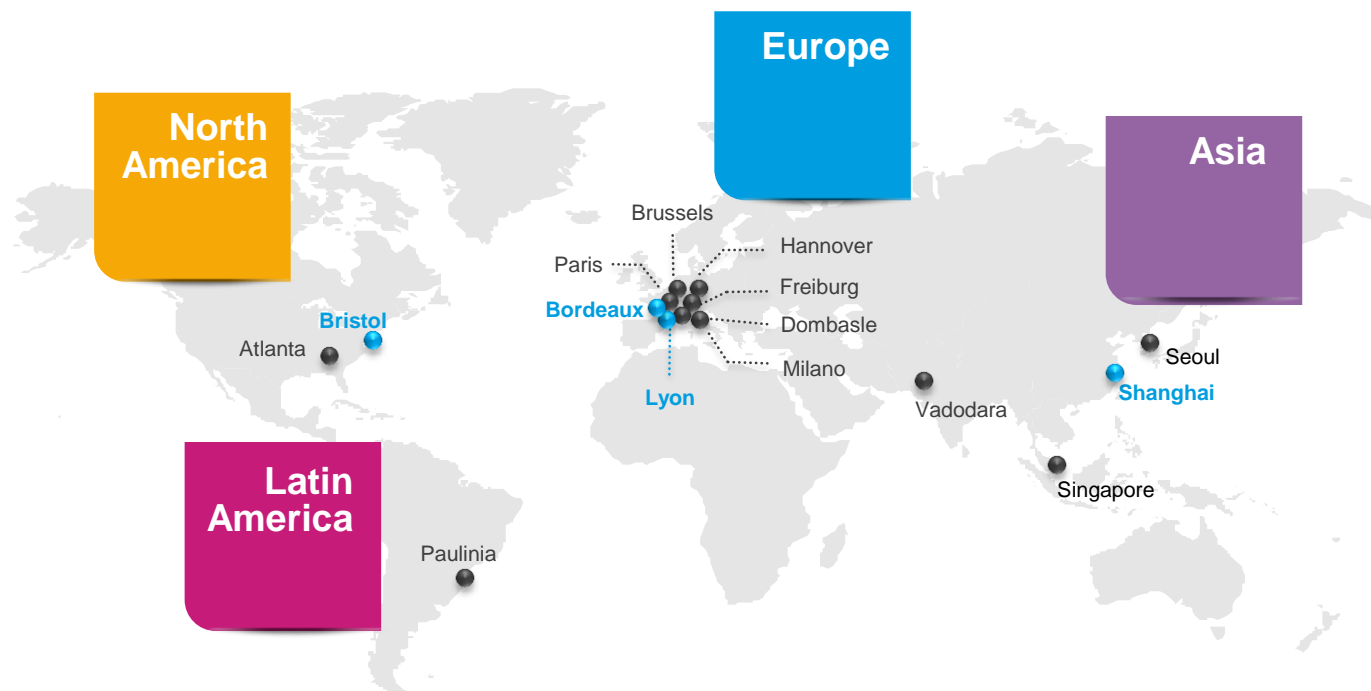
Our Innovation responds to Sustainability Challenges



At the Heart of Global Innovation Ecosystems

Our R&I Network

Enhanced by Open Innovation



1,950
Staff in R&I

€ 287 M/y
Efforts in R&I

82%
Of R&I resources
managed by BUs

21%
New sales ratio

259
Patents filed
in 2014



2016 objective:
30% of REBITDA
growth generated
by innovation

Open innovation

- 4 Joint labs with top research institutions of France, China and the USA & the French National Center for Scientific Research
- > 100 collaborative R&I Projects
- €55M invested in Venturing & Start-ups

At the Heart of Global Innovation Ecosystems

Our R&I Network enhanced by Open Innovation

4 Joint labs with
top research
institutions

... Carry out high-level research and develop a strong academic network



UNIVERSITÉ DE
BORDEAUX



Collaborative R&I
Projects

... Accelerate research and share risks



€ 55 m invested in
Venturing
& Start-ups

... Identify best external growth potential



SOFINNOVA VENTURES



Lead Solvay into new Growth Territories

Innovative Solutions towards Sustainable Mobility



Powertrain Efficiency

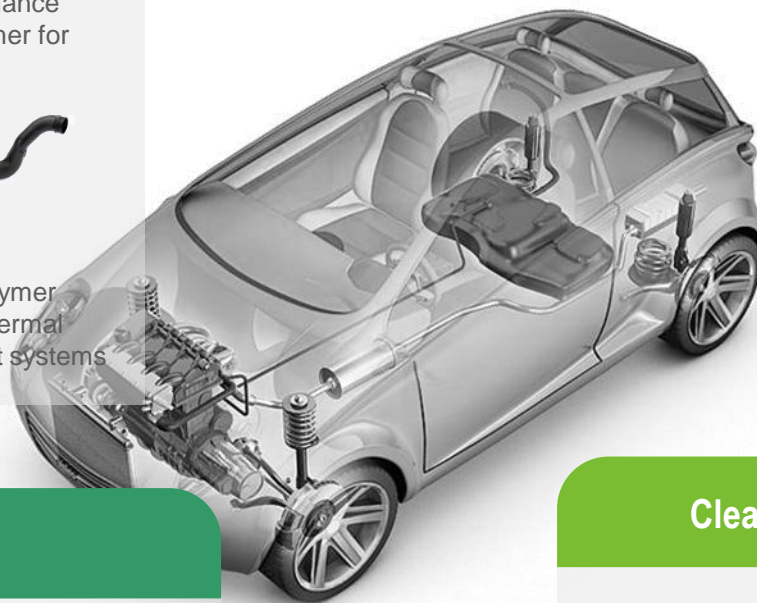


High performance fluoroelastomer for fuel injectors

High temperature resistance materials for air induction & turbo systems



Specialty polymer grades for thermal management systems



Electrification

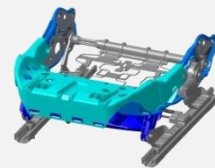


New generation of electrolytes, salts, binders and separators to improve Li-ion battery performance



Products for fuel cell vehicles

Light Weighting



High performance polyamide, and composite materials for semi-structural and structural parts

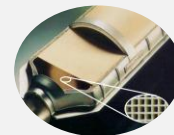
Full range of structural and 3D-moldable high-performance foams



Clean & Green Technologies



Highly dispersible silica



Rare Earth oxide formulations for catalysis systems

Rare earth recycling in permanent magnets



Lead Solvay into new Growth Territories

Sustainable Solutions Towards Sustainable Energy

Energy from renewable sources

- Materials for inorganic and organic photovoltaic panels
- Building blocks for epoxy resins for wind turbines
- Innovative resins for fuel cells membranes
- Energy produced from biomass



Energy storage & conversion

- Innovative materials for current and next generation batteries
- Solar pond
- CO₂ capture & use



Energy & resources efficient

- Energy savings & optimization
- Surfactants (including bio based) and specialty polymers for oil & gas extraction



Lead Solvay into new Growth Territories

Innovative Solutions Towards a Sustainable Lifestyle



Fueling sustainable growth: recent achievements



Solef® PVDF and the IFL™ technology for pipeline rehabilitation

Solvay developed a special grade of PVDF to support IFL™, a new technology conceived for rehabilitating in-field pipelines exposed to extreme corrosive environments, running from platform to platform, or from platform to shore. The inner PVDF provides resistance to the most aggressive hydrocarbon exposure conditions.



Tecnoflon® FKM low temperature fluoroelastomers for sealing

Solvay is introducing a new series of peroxide-curable, low temperature Tecnoflon® fluoroelastomers for the sealing industry. Using new monomer technology, Solvay will extend the low T performance of fluoroelastomers while improving the chemical resistance, and expand the already broadest fluoroelastomer product line and the most comprehensive low temperature portfolio in the industry.



Radel® PPSU Foams for aeronautics industry

Solvay has introduced the industry's first thermoformable PPSU foam for insulative and structural components used in aircraft interiors. Radel® PPSU meets existing and emerging safety requirements for structural and decorative aircraft interior components and is compliant with FAA regulations requiring low flammability and heat release, low smoke generation, and low toxic gas emissions. It is also the material of choice in Solar Impulse for cockpit eggshell and floor.

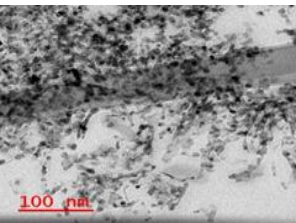


Zeosil®Efficiem, a breakthrough silica for tires, combining enhanced productivity with performance gains.

Zeosil®Efficiem improves rolling resistance, wet grip and wear resistance of the tire. It applies to both passenger car and truck tires.

Moreover, to keep the lead in a fast growing market, a wide investigation on the whole silica process was launched to recover gains in capital investment and process efficiency, while maintaining the same high level of products performances.

Fueling sustainable growth: recent achievements



A 'state-of-the-art' Alumina-Ceria-Zirconia nano-composite material for emissions control applications.

Combining Solvay's expertise in the fields of Alumina and Ceria-Zirconia synthesis, this innovative new product enables our customers to meet the ever-increasing demands of vehicle emission control legislation.



Seed Boosting project aims at providing farmers with an innovative way to increase crop yield or mitigate yield fluctuations due to weather variations.

Our solution consists in a seed coating made out of a derivatized natural polymer (GSB) which promotes early root growth, which makes the plant more robust in case of adverse conditions. Field trials in partnership with major players in the market are in progress.



Best-in-class competitive vanillin effluent-free process developed

This leading process innovation, developed in Solvay's Lyon R&I site, sets a new level of performance for Vanillin production, with a full in-house integration from the Guaiacol ex-Catechol food safe route. This best available technology has been implemented at Solvay's vanillin plant in China.



LiTFSI video wins the 2013 Chemical World Tour (CWT)

Solvay's differentiating Lithium salt enables antistatics performance coatings in Displays and cost effective conductive salt in liquid and polymer battery electrolytes.

CWT, a video competition organized by the French chemical industry association (UIC) and the Maison de la Chimie Foundation aims at enhancing the innovative image of the chemical industry, especially among students.

At the Heart of Global Innovation Ecosystems

Perpetuating the founder's commitment as a strong supporter of science

CHEMISTRY
FOR THE FUTURE
Solvay Prize



1911: Ernest Solvay establishes first prestigious meetings of top scientist through the Council of Physics



Created on the occasion of the 150th anniversary of Solvay, this prize rewards a major scientific discovery that could shape tomorrow's chemistry and help human progress.



A prize to underline the essential role of chemistry to help solve some of the most pressing issues the world is facing.

The first Chemistry for the Future Solvay Prize was awarded to **Professor Peter G. Schultz** of the Scripps Research Institute in California, and Director of the California Institute for Biomedical Research

KetaSpire® PEEK PrimoSpire® SPR

Light weight / metal
replacement

Non-linear numerical modeling

Numerical simulations

Inflatable mobile hangar

Beyond the airplane

Emana based on Polyamide 6.6

For performance pilot wear

Solstick

Energy capture

Halar®

Energy capture

Fomblin®

Lubrication

Sinterline® Polyamide 6

Light weight / metal
replacement

Ixef® PARA

Light weight / metal
replacement

Solkane® 365 mfc

Structure

Torlon® PAI

Structure

Radel® Foam

Floor structure

Solef® PVDF

Energy storage

F1EC

Energy storage



At the Heart of Global Innovation Ecosystems

Solar Impulse - Pioneering Sustainable Chemistry

Solvay's "Flying Lab"

Chemistry helps

- Energy management
- Weight reduction

Si2
SOLARIMPULSE