

At the cutting edge of renewable energies

Backed by its experience in electro dialysis membranes, Solvay has ventured into the promising market of fuel cells^(*), a major technology in the field of renewable energy.

Listening to the market and identifying promising technologies in which Solvay is able to play a major role have led the Group, and in particular its New Business Development (NBD) division, to develop a new "Renewable Energy" research platform.

Recent activities and partnerships give concrete expression to this commitment. Since October 2004, Solvay has been a shareholder in Conduit Ventures Limited (CVL), a London venture capital fund focused on fuel cells and hydrogen technologies. Fuel cells are seen as a sustainable and clean source of energy for a whole range of applications, including portable electronic equipment, fixed energy

sources for buildings, and electrical vehicles. Participating in CVL, which has already funded seven start-ups in the fuel cells field, brings us into direct contact with the market and enables us to adapt our research programmes to developing trends.

On March 8, 2006, Umicore and Solvay concluded an agreement in principle to combine forces to research, develop, produce and sell Membrane-Electrode Assemblies (MEAs: the reactor in which hydrogen reacts with oxygen to produce electricity) and related materials, for fuel cell applications. This cooperation brings together two complementary fields of competence: Umicore's catalyst expertise and Solvay's knowledge of fluorinated polymers and membranes. The 50-50 joint venture, named SolviCore, is based in Hanau, east of Frankfurt, at Umicore's main German R&D site. This joint venture has been operational since July, and employs some 30 persons in its first

development phase. The R&D, promotion and sale of Solvay membranes to SolviCore are piloted by Solvay Solexis, with our own NBD division concentrating more on new fuel cell technologies. Around 30 researchers at Bollate, Italy (Solvay Solexis) and at NOH, Belgium (Solvay R&T) are hard at work in this promising field!

Let's talk of outlets Initially, the experimental MEAs will be developed for industrial vehicles (fork lift trucks), but also for small stationary industrial units (electrogenerating sets, residential combined electricity/heat production...)

and all this by 2010. In April 2006, CMR Fuel Cells plc and Solvay began working together to develop a new concept for easily miniaturizable fuel cells for electronic equipment. This revolutionary type of cell calls for a highly permeable AME structure and very specific electrode catalysts. This concept can improve performance five to 10-fold and is 80% less expensive than conventional fuel cells.

Our cooperation with CMR Fuel Cells, one of the companies in which CVL has a shareholding, is in the form of a scientific partnership: Solvay is bringing in its skills in chemistry and polymer implementation (membrane constituents) and CMR its patented mixed fuel cell technology, giving us excellent advantages.

(*) Fuel cells combine oxygen and hydrogen to convert chemical energy into electricity. The effective combination of these two elements requires the use of ion-permeable membranes, which Solvay is currently developing. In particular, Solvay Solexis has developed high performance fluorinated ion exchange membranes.



Solvay is committed to contributing to developing realistic and environmental-friendly alternatives to fossil fuels.

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Omega joins Solvay as a principal project sponsor.



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A technology dream named Solar Impulse

"We talk a lot of renewable energies, but not enough about the technology to make them possible and to promote sustainable development", is the constantly repeated dictum of Bertrand Piccard, the Swiss "scientist-adventurer" at the origin of the Solar Impulse project.

Developing such technology is precisely the challenge that has to be met to circumnavigate the world in five stages in a manned aircraft propelled solely by solar energy. Solvay was the first main partner to commit to the project, following Bertrand Piccard's well-received participation in the 3rd Innovation Trophy in December 2003. Since then Solvay has been financially supporting the project and providing technological support on a voluntary basis for developing and characterizing the advanced polymers and fluorinated materials needed by the aircraft and simulating their behaviour in extreme conditions. The arrival of a second partner, Swiss watchmaker Omega, in early 2006 has consolidated this daring challenge with funding to take the project into the construction stage. Construction of a prototype solar aircraft will begin in 2007, with the first test flights scheduled in 2008. These will serve to verify the performance of the technological options taken for the aircraft structure and for the solar energy management, by carrying out 36-hour flights, including night periods. In 2010 (or 2011 at the latest), Solar Impulse will undertake its round-the-world flight in five stages.

From canals to the sea!

Novosol[®], an innovative environmental technology that Solvay has developed, has been selected by the Conseil Général of the French département of Var as a promising means for treating contaminated port and canal dredging sludge. This département manages 54 ports, including that of Toulon. Specialist laboratories will be carrying out a complete evaluation of Novosol[®] under the control of the environmental authorities.

The Novosol[®] team uses an extensive network of partners - laboratories, universities and industrial companies - to test the treated materials. It is essential to be able to measure the physico-chemical qualities of treated products, and new official reference values are needed if recycling solutions for this kind of waste are to make the big time. This research is opening up new uses for hitherto neglected materials. Whereas polluted sediments are in most cases simply dumped at sea, the mechanical, physico-chemical and mineralogical properties of "Novosol[®] sediments" make them eligible for recycling as road-building materials. At the same time, with its skills in evaluating cement and concrete, the Ecole Centrale de Lille is examining, together with Briqueteries du Nord, how to incorporate treated sediments into construction bricks, in place of the usual alluvia and clays. This study will supplement existing studies on road-building materials and the examination of a global solution to the problem of dredging sludges in Belgium. More than 20 outside partners have already contributed with their research to casting a new light on the question of reprocessed sediments. For further information, visit www.novosol.be.

CHEMICALS

On the way to becoming number one in fluorine chemistry

At the beginning of May, SBU Fluor started construction of a new plant in Onsan, South Korea, due to come into service in 2007. Using proven technologies, 120 employees will then manufacture the inorganic fluorine products sulfur hexafluoride, iodine pentafluoride, elemental fluorine and NOCOLOK® in Onsan. Solvay has invested EUR 50 million to develop Asia's new and fast-growing markets as part of its growth strategy of expanding both geographically and in existing markets. The Onsan plant is located close to major automotive and electronics customers. "Onsan is a significant milestone on the way to becoming the world's number one supplier of fluorine specialties", says Dr. Bernd Wilkes, General Manager of SBU Fluor. "Our commitment in Asia is clearly aligned to new markets. The activities will have no effect on existing production facilities."



The first soil is turned for the new SBU Fluor plant.

Production capacity for the above mentioned products at Solvay Fluor's existing plants is already largely utilized and cannot be readily expanded. An international team will support construction of the new plant. "Worldwide cooperation is the key

to worldwide success", Dr. Wilkes underscores, "This is why Solvay's Korean employees have been familiarizing themselves with products and processes at the German SBU Fluor location in Bad Wimpfen during the last few months."



The eye-catching visuals of "Customized Color" campaign used Emperor Penguin to illustrate that color doesn't come at the expense of performance.

PLASTICS

Radel® R sterilizeable plastics: the look you want. The performance you need

The new look for Radel® R sterilizeable plastics produced by Solvay Advanced Polymers is all about delivering custom colors with lower order minimums and faster delivery times. Equally important is doing this without compromising the material's ability to withstand more than a thousand cycles of disinfection and steam sterilization with no significant loss of properties. The challenge of providing that performance in custom colors came with more than a few manufacturing and marketing wrinkles. Custom colors present an enormous opportunity for our clients to distinguish their brands and their products in a very

competitive marketplace. Whether they make sterilization cases, trays, lids or other orthopedic products, custom-colored Radel® R plastics can give them an exciting new look. The business challenge was a simple one. Find a streamlined way to produce custom color orders on smaller, limited runs with turnaround times and delivery dates that reflected the real world. The solution was manifold, involving technical expansion and production improvements coupled with enhanced scheduling responsiveness. In the end, the results were the elimination of barriers to obtaining custom colors based on volume runs and a much shorter delivery cycle. To learn more about custom-colored Radel® R sterilizeable plastics, visit www.solvaymedical.com.

Specialty Polymers on the move at Chinaplas

SBU Specialty Polymers took an innovative marketing approach at Chinaplas 2006 (Shanghai/China), the key Asian exhibition for the plastics and rubber industries. On the same 102 m² stand, various Group enterprises – SolVin, Solvay Advanced Polymers, Solvay Solexis and Solvay Engineered Polymers – joined forces to present their products by market groupings, with specific emphasis on customers' expectations: Design Engineering with Specialty Polymers (healthcare, plumbing, electricity, electronics, semiconductors, telecommunications); High Performance Materials for demanding conditions (membranes, oil and gas, chemical industry); Specialty Polymers and High Performance Materials for cars (inside, outside and under the hood) and Barrier Polymers for packaging. The stand

also included presentations on the Group and on its activities in China, and spotlighted the innovations of the exhibiting companies. Under the slogan "Moving people and ideas with specialty polymers and high performance materials", the Solvay stand drew large numbers of visitors (Chinaplas 2006 hosted almost 60 000 visitors, 15% from outside China) and enabled sales teams to make a host of contacts with various stakeholders.

For the businesses taking part, the overall experience was positive and the global objectives were reached: establishing new contacts, increasing market awareness of Solvay and its specialty polymers and developing existing contacts. The same approach will be used on the Solvay stand at the next Kunststoffe fair, which opens on October 24, 2007 in Düsseldorf (Germany).



Moving people and ideas with specialty polymers and high performance materials.

Research & Technology at the "Entreprendre 2006" fair



Solvay Research & Technology (Neder-over-Heembeek/Belgium) took part in the 2006 "Salon Entreprendre" (Entrepreneurship Fair) held in Brussels on 22 and 23 March. Featured at the fair was Solvay R&T's unique "hosting start-ups" project, that makes a wide range of state-of-the-art competences available to entrepreneurs and young start-ups in one and the same location, in chemistry, pharmaceuticals, plastics and plastics processing. The added value for beneficiaries is beyond doubt. For Artelis, the first start-up on the site in October 2005, access to these services at competitive prices was a key decision factor. Participating in this fair is also a superb opportunity to make business contacts, especially with bankers who specialize in supporting young entrepreneurs. This rendezvous also facilitates contacts with companies looking for premises and development facilities. Face-to-face contacts with member of the interface cells of the main universities and with representatives of research support bodies have considerably enhanced the visibility of this project.