

## Press release

### Prestigious prize for HybSi<sup>®</sup> membranes

Dr. Rob Kreiter, working at the Energy research Centre of the Netherlands (ECN), has received the 2009 Donald R. Ulrich award for “an outstanding contribution to the field of Sol-Gel science and technology”. The prize, for product or product oriented R&D, was awarded for the breakthrough work on the HybSi<sup>®</sup> membranes. The co-recipient, in the category of fundamentals of Sol-Gel, was Dr. Paolo Falcaro of CSIRO, Australia. The award was handed over by Prof. Nakanishi on behalf of the International Sol-Gel Society (ISGS) in Porto de Galinhas, Brazil during the International Sol-Gel Conference on 27 August 2009

The HybSi<sup>®</sup> membranes are made from an organic-inorganic hybrid material and are the result of a fruitful collaboration between ECN, and the universities of Twente and Amsterdam. ECN transformed the initial findings into a market ready product. Membrane separations consume much less energy than many conventional industrial separations. An important example of a possible application is the dehydration of organic solvents.

The referees recognized the unprecedented long-term stability of HybSi<sup>®</sup> membranes under hydrothermal conditions and the control of pore size and affinity. The stability allows for application in high-temperature mixtures that contain water or steam. As a measure of their stability, HybSi<sup>®</sup> membranes proved to have a stable performance for over two and a half years in dewatering of butanol at 150°C. Control of pore size and affinity was needed to develop HybSi<sup>®</sup> membranes that separate water from (bio)ethanol and hydrogen from gas mixtures. Currently, ECN is expanding the scope these organic-inorganic hybrid silica membranes further.

HybSi<sup>®</sup> membranes are commercialized using the website [www.HybSi.com](http://www.HybSi.com), through which evaluation modules in different sizes are available. Pilot tests at targeted end-users will further support the applicability of these membranes under industrial conditions. The first test at a membrane scale of 1 m<sup>2</sup> surface area is planned. ECN is actively discussing with several membrane producers, system builders, and end users about the next steps in this development.

#### **About Dr. Rob Kreiter**

Dr. Rob Kreiter is working as Scientist and project leader in the Membrane Technology group at ECN since 2005. Sol-gel chemistry and hybrid materials are among his main interests. He was strongly involved in the development of HybSi<sup>®</sup> membranes from the start and currently coordinates materials research on hybrid silica membranes and materials.

### **About the Donald R. Ulrich Award**

Since 1995 the International Sol-Gel Society grants a biennial award to young researchers who have been recognized for their distinguished achievements in the field of Sol-Gel and technology. Several of the previous awardees are currently active as influential scientists or engineers on sol-gel materials, e.g. Dr. Florence Babonneau (University P. et M. Curie – CNRS, group leader), Prof. Dr. Vadim G. Kessler (Swedish University of Agricultural Sciences, Uppsala), Prof. Dr. Nicola Hüsing (University of Ulm, Germany), Dr. Philippe Belleville (CEA, research engineer).

The award is granted in remembrance of Prof. Dr. Donald R. Ulrich, who pioneered the US Air Force structural materials chemistry research program. He established and managed major national and international research programs that were fundamental for the existence of the Sol-Gel field.

### **About sol-gel technology**

Sol-gel technology is a methodology to produce a material from molecular inorganic building blocks, which is being used in the fabrication of e.g. porous structures, (ceramic) particles and coatings.

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### **Only for press**

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