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For immediate release

16 August 2010

Biofuels: FT microchannel demonstration project now up and running

The biomass-to-liquids (BTL) demonstration plant, jointly operated by the Oxford Catalysts Group and the Portuguese incorporated holding company SGC Energia (SGCE), at the biomass gasification facility in Güssing, Austria, is now up and running. The plant is designed for the small scale distributed production of biofuels via the Fischer-Tropsch (FT) reaction.

The demonstration plant, which is being managed by SGCE, has been fully operational for over a month. Initial results indicate that the equipment – including the Güssing gasifier, a gas conditioning unit supplied by SGCE and an FT microchannel reactor skid developed by the US-based member of the Oxford Catalysts Group, Velocys, Inc. – is operating smoothly.

The FT microchannel reactor, comprised of over 900 microchannels, is working effectively. It is proving to be very efficient at controlling temperatures in highly exothermic (heat-generating) FT reaction and at maintaining isothermal conditions throughout the reactor. The demonstration plant is already producing over 0.75 kg of high quality FT liquids per litre of catalyst per hour – 4 to 8 times greater productivity than conventional systems. The unit is also demonstrating robust responsiveness to shutdowns and start ups.

These results confirm the significant process intensification potential of the FT technology. Performance will improve further after the steam superheating section of the plant is debottlenecked at the next scheduled shutdown. Going forward, the demonstration plant will be operated over a wide range of conditions to establish and confirm its performance. It also will be further tested in an extended 3-month steady state run.

Roy Lipski, CEO of Oxford Catalysts Group said:

“Successful testing of our FT demonstration is an important step closer to validation of our technology in the field, paving the way for commercial roll out with our partner SGCE.”

Vianney Vales, CEO, SGCE said:

“As the managing company in charge of the Güssing demonstration, SGCE is very pleased with the initial performance. We remain on track to place a commercial order upon completion of the technical milestones, initiating worldwide commercialisation of the Group’s FT technology.”

Velocys Inc.

Velocys Inc is based in Columbus, Ohio, US and specialises in the design and development of microchannel process technology for the production of synthetic fuels. The company was spun out of Battelle Memorial Institute, Inc, a major not-for-profit science and technology organisation, in 2001. It owns, or has licenses to, the largest microchannel patent portfolio in the world, with over 550 patent filings, and supports a large microchannel development team. Velocys Inc. was acquired by Oxford Catalysts in 2008. www.velocys.com

Oxford Catalysts Ltd

Oxford Catalysts Ltd, designs, develops and licences specialty catalysts for the generation of clean fuels from both conventional fossil fuels and certain renewable sources such as biomass. The company focuses on two key platform

technologies.

The first is based on a novel class of catalysts using metal carbide technology. Aside from their lower cost, these catalysts offer a number of advantages. For example, in some reactions metal loadings can be reduced. In others, the need for precious metal promoters can be eliminated, while still retaining or even exceeding the benefits of traditional catalysts. Applications of these metal-carbide catalysts include hydro-processing and the conversion of natural gas, biogas or coal into sulphur-free diesel

The second platform is based on a novel catalyst and fuel combination that produces instant chemical steam at temperatures between 100°C and 800°C starting from room temperature. Such Instant Steam could have important applications in a broad range of markets, from cleaning and disinfecting, to green energy in the form of motive power or electricity.

www.oxfordcatalysts.com

SGCE

SGC Energia, SGPS, S.A. (“SGCE”) is the Group’s preferred partner in the synthetic fuels market for applications involving solid feedstock such as biomass. The Group’s FT demonstration at Güssing is being operated in conjunction with SGCE, who is responsible for the overall project management and demonstration plant activities, as well as the full costs.

SGCE is a Portuguese incorporated holding company that acts as the investment arm of João Pereira Coutinho, a well known Portuguese entrepreneur, in the renewable energy sector. Mr Coutinho, through his holdings, is involved in the production of conventional biofuels and the development of next generation bio and synthetic fuel technologies, as well as the supply of complex integrated solutions for the production of alternative energy. Mr Coutinho’s activities in the sector include the operation of a 125,000 ton/year biodiesel production facility, the establishing of over 30,000 ha of biomass energy crops in Africa, and, with partners, the development and demonstration of gasification, syngas cleanup, and syngas-to-liquids technologies. His staff participates in the engineering and operation of facilities, as well as the business aspects of projects. SGCE is owned by João Pereira Coutinho and his SGC Group. SGC Group is active in 13 countries and has an annual turnover of over €1 billion.

SGCE has already secured the host site and initiated engineering activities for its first commercial synthetic fuels facility. Following successful demonstration at Güssing and completion of the technical milestones, SGCE intends to place its first commercial order with the Group. www.sgc.pt