

For immediate release

6 August 2008

Compressed natural gas: new chemisorption catalyst technology cuts production costs

In the drive to reduce pollution, compressed natural gas (CNG) is becoming an increasingly popular option for transportation fuels. A new catalyst-based technology now being developed by Oxford Catalysts under a memorandum of understanding (MOU) with the Thai state controlled oil and gas company, PTT, will make it possible to produce CNG more economically.

The first step in CNG production is to upgrade the natural gas raw material by removing impurities, such as mercury and sulphur. This is typically carried out via chemisorption, a process that removes pollutants by involving them in a chemical reaction. The efficiency of the chemisorption process depends heavily on the composition of the catalyst, or more precisely, the chemisorbent. Lab-scale tests show a new proprietary chemisorbent from Oxford Catalysts has a greater capacity, or ability to take up more pollutant per unit volume, than existing chemisorbents. The key to the improved performance lies in the chemisorbent composition – the combination of the metals used in the chemisorbent.

The new chemisorbent will be tested by PTT in two commercial side-stream units, one located onshore, and one offshore. An industrial scale field trial is also planned. Meanwhile, Oxford Catalysts is working with a major catalyst company to scale up manufacture of the new catalyst for commercial deployment.

Derek Atkinson, Business Development Director, Oxford Catalysts says:

"The trick with developing chemisorbents lies in finding the right combination of metals to react with the pollutants you want to remove. There is a government-mandated need in Thailand to move to cleaner transportation fuels, specifically to the use of CNG. The use of this technology will allow make it possible to produce CNG more economically. This, in turn, will help to reduce the environmental problems associated with the use of conventional fuels in crowded Thai cities."

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Notes to Editors

Chemisorption

Chemisorption is a process that relies on a chemical reaction – rather than physical forces -- to capture molecules onto the surface of a solid. In chemisorption reactions, the reaction takes place on the surface of a catalyst. When the catalyst surface is saturated, the catalyst is replaced.

The chemisorption catalyst being developed by Oxford Catalysts and tested by PTT is based on the use of a chemisorbent with a unique composition. Mercury and sulphur are pollutants that are present in many natural gas fields, and those in Thailand are no exception. This new chemisorbent has a greater capacity, or ability to take up more pollutants per unit volume, than existing materials.

Oxford Catalysts

Oxford Catalysts Group PLC designs and develops specialty catalysts for the generation of clean fuels from both conventional fossil fuels and certain renewable sources such as biomass. Its patent-pending technology is the result of almost 20 years of research at the Wolfson Catalysis Centre at the University of Oxford, headed by Professor Malcolm Green. Oxford Catalysts was founded by Professor Green and Dr Tiancun Xiao in October 2004 and was admitted to trading on the AIM market of the London Stock Exchange on 26th April 2006, having raised £15m before expenses from a solid base of institutional investors. The company's strategy is to license its catalysts for commercial application by entering into co-development partnerships with leading manufacturers, producers and suppliers in the petroleum, petrochemicals, fuel cells, biogas, steam applications and catalysis markets.

Oxford Catalysts has two key platform technologies. The first is based on a novel class of catalysts made from metal carbides. 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 hydroprocessing and the conversion of natural gas, biogas or coal into sulphur-free diesel.

The second involves catalysts that can be used to produce steam at temperatures between 100°C and 800°C instantaneously starting from room temperature, from a liquid fuel containing dilute hydrogen peroxide and either an alcohol, sugar, glycerol, starch or formic acid. 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

PTT

PTT is Thailand's only fully-integrated oil and gas company, with a leading position in exploration and production, transmission, refining, marketing & trading of petroleum and petrochemical products. PTT and its affiliates represent approximately 20% of Thailand's gross domestic product.

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