

**Press release TAURUS ENERGY AND SEKAB  
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## **Swedish biotech cooperation on advanced cellulose ethanol development**

**Taurus Energy, SEKAB, Chalmers Technical University and the University of Lund have signed an agreement on development and large scale implementation of a new improved bio-technical process for production of ethanol from lignocellulose feedstocks based on Taurus' yeast technology for fermentation of both six and five-carbon sugars.**

"There is considerable interest in using cellulosic raw materials for ethanol production. By means of this cooperation we are aiming at becoming amongst the first in the world to demonstrate that our pentose fermenting technology is suitable for future commercial production of ethanol based on agriculture and forestry waste," says Lars Welin, President and CEO at Taurus Energy.

The cooperation shall verify that Taurus' pentose technology, a field in which Taurus Energy already has several patents and patent applications, functions in an industrial environment. Pentose-fermenting yeasts can improve the ethanol yield from lignocellulose materials such as straw from grain, maize stalks, bagasse from sugarcane or sorghum, energy forest, salix and forestry waste, and thereby creating a cheaper and more environmentally friendly fuel.

Ethanol based on lignocellulose is regarded by many as the fuel of the future, and is also referred to as the second generation of biofuels. It is the most efficient fuel in terms of reducing impact on a heavily burdened environment, without affecting food supplies.

Cellulosic ethanol would efficiently reduce carbon dioxide emissions without competing with traditional agriculture for arable land.

### **Increased efficiency**

"Taurus technology provides us with an opportunity to significantly increase the efficiency of ethanol production from raw materials rich in pentose compared with present methods," says Jan Lindstedt, technical director at SEKAB. "If five-carbon sugar can be fermented efficiently in continuous production, yield of ethanol will be improved by between 5 to 40 percent, depending on the raw material. This also lowers production costs.

In stage one the yeast strains are adjusted at Chalmers to suit the raw material to be tested, after which fermenting technique is optimised at LTH. This is expected to take 6-12 months.

"This cooperation between Chalmers and LTH combined with pilot scale evaluations performed at SEKAB is important for future development," says Professor Lisbeth Olsson at Chalmers. "We increase our professional skills in this field and we obtain resources in the form of researchers and valuable equipment."

### **Large scale testing**

Stage two incorporates extended large scale testing over a longer period at SEKAB: s research and development pilot plant in Örnsköldsvik in order to adjust this technology to

fit in with more industrial conditions. SEKAB thereby strengthens its position as a centre for industrial application of bio-technology.

Previously, Taurus technology has been tested on a gram and litre laboratory scale at Lund University with good results. It will now be evaluated on 10 cubic metre scales. The Swedish Work Environment Authority has approved the use of Taurus' recombinant yeast in the pilot plant.

The project will be started immediately. The budget amounts to 7 million SEK - 3.5 million from the Energy Authority, 2 million from SEKAB and 1.5 million from Taurus.

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**About Taurus Energy AB**

*Taurus Energy AB is a research and development company whose aim is to commercialise the extensive research and development work related to ethanol production. Since 2006, the business idea has been, via licence agreements to give the rights to use developed methods to energy producers on the global markets. Taurus has tens of world-leading patents to which 20 or so internationally renowned researchers have contributed. The company is based at Ideon Research Park in Lund. Taurus is quoted on the stock market. Read more at: [www.taurusenergy.eu](http://www.taurusenergy.eu)*

**About SEKAB**

*SEKAB is a Swedish company undertaking a world leading development of biorefining technologies and processes for the production of ethanol and other products from non-food cellulosic biomass feedstocks. The company has a second generation bio-ethanol pilot plant operating since 2004 to further develop and integrate the core technologies on a commercial scale. SEKAB is also the leading European supplier of renewable fuel. The company focuses on developing the market for bio-ethanol in Northern Europe and the construction and operation of large-scale ethanol production facilities. Turnover for 2007 amounted to 2 billion SEK. Head office and pilot plant are located in Örnköldsvik, Sweden. Four subsidiaries are included in the SEKAB Group: SEKAB E-Technology, SEKAB Industrial Development, SEKAB BioFuels & Chemicals and SEKAB International. For more information about SEKAB please visit: [www.sekab.com](http://www.sekab.com)*