



Larox meets the filtration targets of the Biofuel Industry: Maximum Sugar Recovery, Minimum Water Usage, Maximum Dry Solids

One of the most critical steps of the biofuel production process is the solid-liquid separation as this can have a huge influence on how competitive a particular technology will be.

Biofuels market is a hot topic and evolving very fast. The need for alternative transportation fuel sources increases, and the biofuel industry moves from food to non-food based biomass feed stocks. The industry is now facing new challenges to develop environmentally friendly processes which produce cost efficient commercially viable fuel alternatives.

Larox is working closely with many of the Biofuel industry leaders to help optimize their filtration needs. With a broad product portfolio, testing and process consultation capabilities Larox has proven to be a viable solid-liquid separation partner to the Biofuel

Industry worldwide. "Maximum sugar recovery, minimum water usage and maximum dry solids – these are the benefits achieved thanks to Larox filtration solutions", says Mr. Kevin Schraden, Larox Business Manager.

Filtration for 2nd and 3rd Generation Feedstocks

"As the biofuels industry is moving away from food based raw materials because of economic and political pressures, we have also focused our efforts on processes which use 2nd and 3rd generation raw materials such as wood chips, straw, grasses and

other plant and agricultural wastes", explains Mr. Kevin Schraden. "These other wastes including corn stover and cobs and pulp mill waste such as lignin are becoming more and more important, and with these raw materials we have also had very good filtration results."

Larox has successfully sold filters for biofuels demo plants in Japan, Finland and Canada, but due to the ongoing development, most of these projects are highly confidential. >>

No Standard Processes, No Standard Solutions

Whether the feed stock is wood chips, grass clippings, corn stover, rice straw or some other bio-waste material, each process has its own unique challenges.

"Each biofuel process or variation within the same process changes the filtration characteristics of the slurry due to the variations in the feedstock, pretreatment used, feed particle size, particle size reduction due to shear pumps, residence time prior to filtration, solids content in slurry, slurry temperature, amount of washing required, etc. In biofuels, we can take advantage of the long experience and test data Larox has accumulated during 30 years, but we treat each filtration case as unique", describes Mr. Joe Skafar, Larox Sales Manager.

Larox is well positioned as biofuel industry's filtration partner thanks to the vast product portfolio and experiences. "Biofuel is a demanding application that requires flexibility in the process equipment. We have the ability to choose from several filtration products to determine which filter will best meet the objectives and can often handle multiple streams in the process as a result", Mr. Skafar says. "We can offer filtration solutions for the most difficult process conditions including most forms of lingo-cellulosic conversion: enzymatic pretreatment, acid hydrolysis, solvent based de-lignification, fermentation processes and gypsum neutralization."

"Larox's broad product portfolio enables to find the right filter for each specific process. The highly performant Larox Pressure Filter (PF), for example, is an excellent choice for a maximum recovery of valuable sugars and dry solids, whereas our Gas Tight options with the RT/GT and the DS Filter are well suitable for solvent applications. Our ability to adjust our materials of construction for the specific requirements of these harsh applications is also a significant benefit", he continues.

Active Participation in Industry Research

In Finland, Larox participates in SugarTech project which is a cooperation project between VTT Technical Research Centre of Finland, University of Helsinki and several industrial companies. In this three year project spruce, forest residue, birch and sugar cane bagasse are being studied as a raw material for production of sugars to be processed further to ethanol and other chemicals. "The project progresses in four, so-called, work packages including raw materials and feasibility, development of pretreatment methods, development of hydrolysis process and enhancing enzyme production. We follow the results very closely and try to learn as much as possible through this cooperation", says Mrs. Leena Tanttu, Senior Engineer, Process Services, and Larox's representative in the SugarTech project.

Contacts

Filtration solutions for biofuels, please contact the nearest Larox office, contacts at www.larox.com, or Mr. Kevin Schaden, Business Manager, phone +1 301 543 1226.

Press contacts: Ms. Inka Pöllänen, phone +358 (0) 207 687 200.

Larox in Brief

Larox develops, designs and manufactures industrial filters and is a leading technology company in its field. Larox is a full service solution provider in filtration for separating solids from liquids. It supplies comprehensive aftermarket services throughout the lifespan of the Larox solution. Companies world-wide in mining and metallurgy, chemical processing and related industries benefit from the Larox technologies. Larox operates in over 40 countries and has over 600 employees. Larox has production facilities in Finland and in China, and the Group is headquartered in Lappeenranta, Finland. Net sales in 2009 totaled 150.2 million euros, of which more than 93 % were generated by exports and the company's foreign operations. Larox is a subsidiary of Outotec.



Larox Corporation
P.O. Box 29
FI-53101 Lappeenranta
Finland
Phone +358 20 768 7200
Fax +358 20 768 7277
E-mail info@larox.com
www.larox.com

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