



Versalis to Partner with Genomatica and Novamont for Bio-based Butadiene

Versalis aims to be first to build commercial plants

Milan, Italy - July 24, 2012 - Versalis, Eni's chemicals subsidiary leader in the production of elastomers, together with Genomatica (a leading developer of process technology for renewable chemicals), and Novamont (a leader in biodegradable plastics and pioneer in third generation integrated biorefineries) signed a Memorandum of Understanding (MOU) to establish a strategic partnership to enable production of butadiene from renewable feedstocks.

Butadiene is a raw material used in the production of rubber for tires, electrical appliances, footwear, plastics, asphalt modifiers, additives for lubricating oil, pipes, building components, and latex.

The partnership, on the basis of which a joint venture will be established, will develop a comprehensive 'end-to-end' process for production of polymer-grade butadiene from biomass. Versalis will hold a majority interest in the joint venture holding company and aims to be the first to build commercial plants using the process technology upon project success.

This unique and important agreement brings together the core competencies of all three companies. The partnership will leverage Genomatica's proprietary technologies and intellectual property for producing butadiene, Versalis' extensive expertise in catalysis process development and process engineering scale-up and market applications of butadiene derivatives, as well as Novamont's experience in renewable feedstocks.

Under this agreement, Versalis will use Genomatica's process technology for economically competitive and sustainable production of an important supply-constrained chemical. The process technology aspect of the agreement is intended to be made available for future licensing in Europe, Africa and Asia.

Butadiene is a key intermediate for Versalis elastomers business. The raw material required to produce it, extracted from 'C4's (a mixture of molecules containing four carbon atoms) and produced by cracking plants, is increasingly subject to availability problems.

Decreasing supplies and a lack of dedicated butadiene production facilities have resulted in significant long-term pressure on the price and volatility of the chemical, which in turn increases the price of butadiene-based products, including tires.

Concerns of scarcity in the butadiene market are compounded by growth forecasts within the BRIC countries where demand for automotive products made from butadiene, such as tires, is expected to increase.



In this context, butadiene supplies from biomass become strategic to Versalis, because in times of C4 stream scarcity it can be freed from naphtha cracking processes. So the partnership represents a valuable opportunity to boost the supply of butadiene with the support of its know-how and the industrial system, and to expand its bio-based portfolio.

"Genomatica's process technology for on-purpose butadiene combined with our experience in downstream applications and our ability to rapidly scale and commercialize the process can expand our industry's approach to C4 production, seizing a promising business opportunity in a market that is experiencing a critical time" said Daniele Ferrari, CEO of Versalis. "This partnership, which follows the establishment of Matrica, the equal joint venture with Novamont for the production of monomers, intermediates and polymers from renewable sources, accelerates the entry of Versalis in that business by strengthening its leadership in elastomers, in line with the new strategy of focusing on products with high-added value."

"Together we will have a great opportunity to apply Novamont's concept of third generation integrated biorefineries to a well-known chemical like butadiene, applying new biotechnological and chemical processes to local biomass for an innovative industry at local level, thereby improving environmental, economical and social sustainability," said Catia Bastioli, CEO, Novamont. "And the ability for on-purpose production will make it easier to adjust supply to meet local market demand while staying close to a low volatility feedstock and reducing environmental footprint."

"Versalis and Novamont are ideal partners to join us in leading the development of process technology for the production of butadiene from renewable feedstocks," said Christophe Schilling, Ph.D., CEO of Genomatica. "Together we can cover the entire value chain, and drive from innovation to commercialization, providing a comprehensive solution. This partnership is further validation of the ability of Genomatica's technology platform to address multiple chemical market opportunities."

The agreement between the three parties builds upon a series of recent key events including the June 2011 formation of Matrica, a 50:50 joint venture in bio-based chemicals production between Versalis and Novamont; the announcement that Versalis plans to heavily invest in innovation and capitalize on Elastomers, and Genomatica's successful production of pound quantities of bio-based butadiene in August 2011.

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