Global Bioenergies announces break-through in direct biological production of butadiene

Evry, November 26th, 2014 – Global Bioenergies (Alternext Paris: ALGBE) announces having succeeded in the production of bio-sourced butadiene by direct fermentation. It is the first time ever an entirely biological production process -i.e. without any chemical step- is reported for butadiene, one of the most important petrochemical building blocks.

Butadiene is a key platform molecule of the petrochemical industry with a world-wide market of over 10 million metric tons per year. As of today, butadiene is exclusively obtained from fossil resources, principally through extraction from naphtha cracking. Given the decrease in naphtha cracking capacities, there is a need for alternative routes to butadiene. In this context Global Bioenergies has signed in 2011 a collaboration agreement with Synthos (Warsaw Stock Exchange: SNS), a leader in the production of butadiene-derived rubber products, to develop a direct fermentation route allowing a cost-effective transformation of renewable resources into butadiene. Since such a direct biological route does not exist in nature, Global Bioenergies first had to invent a new metabolic pathway comprised of a series of non-natural enzymatic reactions. This step was successfully achieved in December 2012.

The next step consisted in improving the activity of those enzymes and implementing them into a bacterial strain.

Global Bioenergies today announces having created such a proprietary production strain. This strain was placed in a lab-scale fermentation device, and upon the addition of glucose, the presence of butadiene in the off-gases was detected. This is the first time ever that the production of butadiene by direct fermentation from renewable resources has been reported.

Chief Technology Officer Frédéric Pâques comments: “We now have in our hands a prototype process for the direct biological conversion of renewable resources into butadiene. We expect that this butadiene program will deploy in the next years as did our isobutene process, our most mature asset now operated in an industrial pilot. Direct fermentation of butadiene has major inherent advantages translating into better economics. We expect to demonstrate these in an industrial environment in the next few years.”

Jarosław Rogoża, R&D Director & Member of the Board at Synthos adds: “We have joined this program in 2011 when it was still in the discovery stage and are very glad it has since then followed the planned trajectory. We consider that the program is now significantly de-risked. We are looking forward to see how the program will behave in the next phase, dedicated to the optimization and scale-up of the process.”

About GLOBAL BIOENERGIES

Global Bioenergies is one of the few companies worldwide, and the only one in Europe, that is developing a process to convert renewable resources into hydrocarbons through fermentation. The Company initially focused its efforts on the production of isobutene, one of the most important petrochemical building blocks that can be converted into fuels, plastics, organic glass and elastomers. Global Bioenergies continues to improve the yield of its process which is now being tested in its first industrial pilot. The company also replicated its success in enzyme discovery to propylene as well as butadiene and is looking to continue with

other members of the gaseous olefins family, key molecules at the heart of petrochemical industry. Global Bioenergies is listed on Alternext, Euronext Paris (FR0011052257 – ALGBE).

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Contact

GLOBAL BIOENERGIES
Thomas Buhl
Head of Business Development
Tel : + 33 (0) 1 64 98 20 50
Email : thomas.buhl@global-bioenergies.com

Global Bioenergies on video