

Written on 27 February 2019

5 minutes of reading

News

Innovation and Industry

Climate, environment and circular economy | Plastics recycling | Renewable energies | Biofuels and e-fuels

100% RENEWABLE PLASTIC BOTTLE SIGNIFICANTLY CLOSER TO REALITY AFTER SUCCESSFUL PRODUCTION OF BIO-BASED PARAXYLENE FROM NON-FOOD BIOMASS *BIO-BASED BENZENE IS NEXT*

Sustainable technology company Anellotech and its joint development partners IFPEN and Axens have processed renewably-sourced aromatics made at Anellotech's TCat-8® pilot plant to

successfully recover high-purity bio-based paraxylene – a key component for making 100% bio-based PET bottles a reality.

Thisis a key development milestone for Anellotech and global consumer beverage company Suntory, as the two partners will collaborate to produce the bottles. Anellotech, IFPEN and Axens will now purify additional paraxylene to create pilot sample 100% bioPET beverage bottles – as well as sample quantities of bio-based benzene whose derivatives (nylon, ABS, polycarbonate, linear alkyl benzene) are used in clothing, toys, mobile phones and laundry detergent.

“We’re delighted with this achievement, a key milestone on the path to 100% bio-based PET bottles,” said Munehiko Takada, Chief Specialist of Packaging Material Department at Suntory. “High-purity bio-paraxylene is an important material for our business, especially from a sustainability viewpoint.”

Anellotech has been producing renewably-sourced aromatics for purification by IFPEN and Axens in Europe. Since the announcement of a successful two-week continuous trial in March 2018 at Anellotech’s TCat-8® pilot plant at Silsbee, Texas, over 4,000 hours of cumulative on-stream time have been achieved.

An initial volume of high-purity bio-paraxylene test samples has been produced. These samples have completely met all of the ASTM International specifications for downstream derivatives in conversion to PET. As larger amounts of paraxylene are purified, Anellotech will begin to make renewable PET resin for prototype bottle manufacture and product trials. This will be the industry’s first major production of bio-PET from continuous, cost-effective processing of non-food biomass.

David Sudolsky, President and CEO of Anellotech said, “The successful production of high-purity bio-paraxylene from non-food biomass feedstock represents a significant accomplishment for Anellotech, its partners and industry at large, as this latest breakthrough brings 100% renewable plastic bottles closer to reality. Project planning is now underway for the first commercial process plant which will use our proprietary Bio-TCat^{TM} process to produce paraxylene, benzene and other aromatics from sustainably-sourced loblolly pine wood, to be used in bio-based chemicals and biofuels.”

“This is an important milestone to reach our mutual goal and see this technology become a reality,” noted Jean-Pierre Burzynski, Director of the Process Business Unit at IFPEN. “Collaborating with Anellotech offers us a unique opportunity to participate in the development of an innovative and cost-competitive path to bio-aromatics, consistent with our objectives to develop cost-competitive renewable chemicals and fuels from non-food biomass.”

As well as bio-paraxylene, Anellotech continues to work on the recovery of bio-benzene and toluene from TCat-8® output. Separation and purification of high-purity bio-benzene will enable sample volumes of a range of important bio-based polymers such as nylons, polycarbonate, polystyrene and acrylonitrile-butadiene-styrene (ABS) to be produced.

“Today, the energy and chemical industries must be responsive and proactive in adapting their assets and operations to contribute to a sustainable future. Our common project with Anellotech and IFPEN enters fully in this objective. Bio-TCat will complete effectively our processes portfolio to transform biomass into fuel or chemicals.” said Pierre Beccat, Executive Vice President Technology Development & Innovation of Axens.

About Anellotech

Anellotech (www.anellotech.com) technology company focused on commercializing innovative production of cost- competitive renewable chemicals and fuels from non-food biomass. Founded in 2008, Anellotech has raised US$80 million in cash and in-kind contributions to date. Its patented Bio-TCat™ technology is an efficient thermal catalytic process for converting biomass into BTX aromatics (a mixture of benzene, toluene and xylene) which are chemically identical to petroleum-based counterparts. High purity benzene, toluene and xylenes are used to make commodity polymers such as polyester (polyethylene terephthalate or "PET"), polystyrenes, polycarbonates, nylons and polyurethanes which are used to manufacture plastic consumer goods such as beverage bottles, food packaging, clothing, footwear, carpeting, automotive and electronic components. Bio-TCat™ technology can also produce renewable AnelloMate™ fuel blendstocks which can be used to lower the GHG emissions of producing gasoline, jet fuel, diesel, and low-sulphur marine fuels. The Bio-TCat™ process is being demonstrated with loblolly pine feedstocks at Anellotech's TCat-8® pilot plant in Silsbee, Texas which is currently producing aromatics from loblolly pine and generating data to be used for scale-up and commercial plant design by Anellotech and its engineering and licensing partners IFPEN and Axens.

About Axens

Axens (www.axens.net) is a major international process licensing and engineering firm that provides a broad range of process and catalytic solutions to the oil refining, petrochemical, and natural gas industries including novel technologies for renewable biomass conversion. They are ideally positioned to cover the entire engineering value chain for Bio-TCat technology including design and licensing packages, feasibility studies, unit start-up, and technical service. Axens success is based on highly trained human resources, modern production facilities and an extended global network of engineers and technicians for manufacturing, technical, and commercial support services.

About IFPEN

IFP Energies nouvelles (IFPEN) is the French public research entity and a major research and training player in the ?elds of energy, transportation, and the environment. From research to industry, technological innovation is central to all its activities, structured around three strategic priorities: sustainable mobility, new energies and responsible production and use of oil and gas resources. IFPEN collaborates with Anellotech to leverage its expertise in fluid bed catalytic reactor technology, refining, and petrochemicals processing. In addition to extensive activities at its R&D center in Solaize, France, IFPEN provides technical experts to work on-site at Anellotech's Texas location to operate the TCat-8 development unit.

About Suntory

Suntory is one of the world's leading consumer beverage companies with over $25 billion annual sales and has partnered with Anellotech to advance development and commercialization of cost-competitive aromatics, including bio-paraxylene, the key component needed to make 100% bio-based PET bottles. Suntory currently uses 30% plant-derived materials for its Mineral Water Suntory Tennensui brands and is pursuing the development of a 100% bio-based PET bottle through this alliance, as part of its commitment to sustainable business practices. The alliance began in 2012 under a collaboration agreement and Suntory has since provided more than $30 million in funding to date.

For further information contact:

IFPEN
Anne-Laure de Marignan
+33 1 47 52 62 07
anne-laure.de-marignan@ifpen.fr

AXENS
Corinne Garriga
+33 1 47 14 25 14
corinne.garriga@axens.net

Anellotech
David Sudolsky
Anellotech Inc.
+1 (845) 735 7700
DSudolsky@anellotech.com

Bárbara Mendes-Jorge
Sustainability Consult
+32 (0) 2 233 81 47
bmj@sustainabilityconsult.com

YOU MAY ALSO BE INTERESTED IN

Bio-TCat™ technology viability confirmed during extensive Anellotech pilot plant campaign
Bio-paraxylene production: on the path to 100% bio-based bottles
27 February 2019

Link to the web page :