**PRESS RELEASE**

**Reducing the environmental impact of plastic production: Belgian scientists selected as finalists at the European Inventor Award 2023**

* **Michiel Dusselier and Bert Sels developed a one-step catalytic process to make polylactic acid (PLA) polymer without using fossil fuels or toxic chemicals**
* **PLA is made from lactic acid, which is derived from natural resources like sugar and wood chips**
* **This method saves on energy and potentially lowers costs, cutting the total production cost of the bioplastic**

**Munich, 9 May 2023** – Approximately 7 billion of the 9.2 billion tonnes of conventional plastic produced between 1950 and 2017 became plastic waste, according to the United Nations. What’s more, the production of plastics already requires the use of large quantities of fossil fuels. Belgian inventors Michiel Dusselier and Bert Sels have devised an environmentally friendly way to produce **a bioplastic, without the use of fossil fuels or toxic chemicals**. It requireslower energy consumption and produces lower coststhan traditional methods, while significantly reducing greenhouse gas emissions associated with plastic production. **Dusselier and Sels are finalists in the ‘Industry’ category of the European Inventor Award 2023** for their promising work. They were selected from over 600 candidates for this year’s edition.

**Building the bioplastic circular economy**

Bysteering away from conventional plastics and focusing on developing **more eco-friendly bioplastics named polylactic acid (PLA)**, Dusselier and Sels aim to make plastic production and consumption patterns more efficient and **reduce the environmental impact of plastic production.** PLA is made from lactic acid, which is derived from natural resources like sugar and wood chips.

The traditional process of making PLA involves two steps that convert lactic acid into lactide, with the lactide in the finished product having only 60-70% of the original feedstock. This results in high levels of waste making it difficult for PLA to economically compete against other plastics. Dusselier and Sels have developed an innovative **one-step method to produce high-quality PLA.** Their method efficiently makes lactide from lactic acid. This eliminates the need for **a costly extra step, lowering the total cost for producing PLA. It also runs 100°C lower than the traditional method**,saving energy and reducing the carbon footprint. Moreover, it minimises waste by reusing by-products and unused feedstock, making it more sustainable and a promising alternative for producing eco-friendly plastic.

**Birdwatching inspires bio-based conversions**

Dusselier is a tenured professor at KU Leuven in Belgium and, among other qualifications, has a PhD in Bioscience Engineering. His scientific interest in plastics took a personal turn while deciding on the topic for his PhD. As an avid birdwatcher, he grew seriously **concern about the effects of plastic waste** when he noticed some albatrosses had died from ingesting plastic. He then started working with Sels, an expert in bio-based conversions of alternative feedstock into sustainable chemicals and materials.

Dusselier said: *“The scale of the problem is twofold, there is a lot of persistent materials that are not degrading over hundreds of years. Then, you have the fact that they’re all made from fossil fuel feedstocks.”*

As a professor at KU Leuven and co-founder of the European Research Institute of Catalysis, Sels had already started a research group focusing on converting cellulose into chemicals. He worked with Dusselier as one of his PhD students, on different ideas for reducing plastic waste and later **found the solution in zeolites**, specifically H-Beta, which enabled them to develop a single-step method to make PLA.

*“I was always interested in having a full understanding of what goes on so that you can take that as your handle to make the difference. I think taking patents, having contacts within our industry, helping us take it to a larger scale is likely one of our drivers,”* Sels explained.

TotalEnergies identified interest in the technology and acquired the patent. Meanwhile, Dusselier and Sels have gone on to invent another technology that might become the third generation of lactide production for PLA.

**The winners of the European Inventor Award 2023 will be announced at a hybrid ceremony on 4 July 2023** in Valencia, Spain. This ceremony will be broadcast online [here](https://inventoraward.epo.org?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press) and open to the public.

Find more information about the invention’s impact, the technology and the inventors’ stories [here](https://new.epo.org/en/news-events/european-inventor-award/meet-the-finalists/michiel-dusselier-bert-sels?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press&mtm_group=press).

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**About the European Inventor Award**

The European Inventor Award is one of Europe's most prestigious innovation prizes. Launched by the EPO in 2006, the award honours individuals and teams, who have come up with solutions to some of the biggest challenges of our time. The finalists and winners are selected by an independent jury comprising former Award finalists. Together, they examine the proposals for their contribution towards technical progress, social and sustainable development, and economic prosperity. All inventors must have been granted a European patent for their invention. Read more [here](https://new.epo.org/en/news-events/european-inventor-award?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press) on the various categories, prizes, selection criteria and livestream ceremony to be held on 4 July 2023.

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