Opening ceremony with guests from the world of politics and science

**World’s First Pilot Plant for Bio-Based Aniline**
- **Significant step toward producing plastics based on plant biomass**
- **New process for petroleum-free raw material on its way to industrial maturity**
- **Another milestone in the promotion of the Circular Economy accomplished**

Covestro is moving forward with the implementation of a unique process for producing the important chemical aniline entirely based on plant biomass instead of petroleum for the first time. At its Leverkusen site, the plastics manufacturer has now put a special pilot plant into operation for this purpose. Initially, large quantities of bio-based aniline will be produced there, so that the new technology can be further developed for production and transferred to an industrial scale. In the plastics industry, aniline is used to produce MDI, among other things. This in turn is used for insulating foam, for example, which saves energy in buildings and reduces the CO₂ footprint. Covestro believes it will contribute to the promotion of the Circular Economy, which the company is aiming to become fully aligned with.

In attendance at the opening ceremony were North-Rhine Westphalia’s Deputy Minister President Mona Neubaur as well as Professor Walter Leitner, Managing Director of the Max Planck Institute for Chemical Energy Conversion in Mülheim an der Ruhr. Together with Dr. Thorsten Dreier, Chief Technology Officer of Covestro, they discussed the significance of bio-based raw materials for a sustainable chemicals industry of the future.

“Among other things, aniline is a key raw material for foams used to insulate buildings and refrigerators,” Dreier explained the importance of the basic chemical. “Until now, aniline has been produced from fossil raw materials such as crude oil. With our new process, we are helping to build a circular economy with a lower carbon footprint, and I am very proud that we have now succeeded in making the leap to the next technological level.”

Covestro developed the process, which has already won several awards, together with partners in the scientific community. Compared to conventional technology, the process leads to a greatly improved CO₂ footprint of aniline. Covestro has made a seven-digit investment in the pilot plant at the Chempark Leverkusen.

“Sustainable innovations from North Rhine-Westphalia are making a decisive contribution to the transformation of Germany as a chemical location. The
world’s first pilot plant for bio-based aniline is an impressive example of this,” emphasized Neubaur, who is also the State Minister for Economic Affairs, Industry, Climate Protection and Energy. "In order for the industry to continue on its path towards a circular economy and climate neutrality, it needs planning and investment security above all. As the state government, we are therefore working hard to ensure that North Rhine-Westphalia remains an attractive business location and becomes the first climate-neutral industrial region in Europe."

Professor Leitner also underlined the importance of partnerships. “The project illustrates the cooperation between research-based industry and application-oriented science. There are many intersecting partnerships like these, especially in NRW. Germany needs more of this in order to assert itself as a research and technology location.”

Use of biotechnology

The project also clearly showcases the potential contribution of the industrial (“white”) biotechnology to plastics production: in the new process, a customized microorganism helps convert an industrial sugar extracted from plants into an intermediate product through fermentation. This takes place under milder and thus more environmentally compatible conditions than in conventional processes. In a second step, chemical catalysis of the intermediate product then creates the aniline with one hundred percent plant-based carbon.

The research on bio-based aniline will also continue to be funded by the German government. The German Ministry for Food and Agriculture is funding a follow-up project (Bio4PURDemo) from Covestro and partners, which started in March 2022 and runs until 2025. The RWTH Aachen with the CAT Catalytic Center and the University of Stuttgart, as well as the technology transfer initiative located there, are also participating in the project.

Around six million tons of aniline are currently produced worldwide, with the volume growing by approximately three to five percent per year on average. With a production capacity of more than one million tons per year, Covestro is one of the leading aniline producers.

About Covestro:
Covestro is one of the world’s leading manufacturers of high-quality plastics and their components. With its innovative products and processes, the company contributes to greater sustainability and quality of life in many areas. Covestro supplies customers around the globe in key industries such as mobility,
construction and housing, and electrical and electronics. In addition, Covestro’s polymers are used in areas such as sports and leisure, cosmetics, healthcare and in the chemical industry itself.

The company strives to be fully circular and aims to become carbon neutral by 2035 (Scope 1 and 2). In the 2022 fiscal year, Covestro generated sales of €18 billion. As of the end of 2022, the company produced at 50 sites worldwide and employed around 18,000 people (converted to full-time positions).

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