EU Commission confirms good progress in MACBETH project for efficient reactors

[internal]

* Construction of the demonstration plant at the Marl location has started
* Technology saves CO2 and resources and is thus an important contributor to the European Green Deal
* Federal Ministry of Education and Research recognizes potential in success brochure

**Marl.** The MACBETH technology project is taking shape and has received a positive interim evaluation from the EU Commission. Shortly after the start of construction of the planned demonstration plant in Marl, the Commission had the progress of the project evaluated. The auditors were very satisfied with the project, which was launched in 2020 and is the largest EU-funded project coordinated by Evonik.

The aim of MACBETH is to develop reactors that make important large-scale chemical reactions such as hydroformylation significantly more energy-efficient. Membranes and catalysts play a central role in this (MACBETH stands for **M**embranes **A**nd **C**atalysts **B**eyond **E**conomic and **T**echnological **H**urdles). "The project is exceptionally well managed. It is very large and has ambitious goals that are being enthusiastically driven by the project leaders and their partners," says Assessor Annette Juhr, professor of process engineering at Beuth University in Berlin.

Accordingly, considerable efforts were made to avoid jeopardizing the project's anticipated success, in light of the challenges posed by the coronavirus pandemic.

A central goal of the project is sustainability. Greenhouse gas emissions from important large-volume industrial processes could be reduced by up to 35 percent, with an increase in resource and energy efficiency of up to 70 percent. MACBETH thus makes an important contribution to the European Green Deal. This significant potential has also been recognized by the German Federal Ministry of Education and Research. On its behalf, MACBETH was included in a brochure of just ten success projects

16 May 2023

**Main press contact Michael Richter**

Head of Market Communications Performance Materials

Phone +49 201 177 4375

michael.richter@evonik.com

**Alternative press contact Alina Alfes**

eMarketing Manager Performance Intermediates Phone +49 2365 49 19055

alina.alfes@evonik.com

**Evonik Industries AG** Rellinghauser Straße 1-11

45128 Essen Germany

Phone +49 201 177-01

[www.evonik.com](http://www.evonik.com/)

Supervisory Board Bernd Tönjes, Chairman Executive Board

Christian Kullmann, Chairman

Dr. Harald Schwager, Deputy Chairman Maike Schuh, Thomas Wessel

Registered Office is Essen Register Court Essen Local Court Commercial Registry B 19474

[internal]

that are being funded under the broad EU framework program Horizon 2020.

"The project has already succeeded in bringing the technology of catalytic membrane reactors closer to industrial implementation," explains Professor Dr. Robert Franke, project coordinator of the overall MACBETH project and head of hydroformylation research at Evonik. The mechanical completion of the demonstration plant is scheduled for Q3 2023.

In hydroformylation, unsaturated hydrocarbons - so-called olefins

- are converted into aldehydes using synthesis gas - a mixture of hydrogen and carbon monoxide. Aldehydes, in turn, are important intermediates on the way to higher alcohols, organic acids or esters, which are then used, for example, as plasticizers in plastics or as surfactants.

**Company information**

Evonik is one of the world leaders in specialty chemicals. The company is active in more than 100 countries around the world and generated sales of €18.5 billion and an operating profit (adjusted EBITDA) of €2.49 billion in 2022. Evonik goes far beyond chemistry to create innovative, profitable, and sustainable solutions for customers. About 34,000 employees work together for a common purpose: We want to improve life today and tomorrow.

**About Performance Materials**

The forever young classics of the Performance Materials Division stand for products and technologies that are continuously improved. They are the basis for many modern applications, for example in the areas of mobility, nutrition,

pharmaceuticals or plastics. The divisions portfolio generated sales of €3.66

billion in 2022 with about 2,000 employees.

**Disclaimer**

In so far as forecasts or expectations are expressed in this press release or where our statements concern the future, these forecasts, expectations or statements may involve known or unknown risks and uncertainties. Actual results or developments may vary, depending on changes in the operating environment.

Neither Evonik Industries AG nor its group companies assume an obligation to update the forecasts, expectations or statements contained in this release.