

Brighter use of resources –New CO₂-based materials

Christoph Gürtler

Covestro Deutschland AG, Germany

E-mail: Christoph.Guertler@covestro.com

People are becoming more and more aware that carbon dioxide is much too valuable to just be released into the atmosphere, and thus worsen the greenhouse effect. This is because the gas contains carbon, an important element needed for the production of plastics. This means petroleum, a traditional source of carbon, can be replaced at least in part. Covestro wants to exploit this possibility and has become a pioneer of using CO₂.

Covestro currently focuses on using carbon dioxide to produce polyols, a crucial component of polyurethane foam. The new material was launched in 2016. The first target product: Mattresses based on CO₂. A dedicated demonstration plant was built for this purpose.

Since then, further CO₂ based polyether polyols were developed that found a platform for a broader range of applications. These polyols can also incorporate building blocks which derive from intermediates made from CO₂ (indirect use of CO₂). We have investigated a series of applications and will report on current developments.

Within the new project Carbon4PUR we go one step further and try to valorize flue gases – mixed CO₂/CO streams from steel production - for the use in polyurethane applications.