

Press Release



Leverkusen,
August 27, 2021

Covestro AG
Communications
51365 Leverkusen,
Germany

Contact
Dr. Frank Rothbarth
Telephone
+49 214 6009 2536
E-mail
frank.rothbarth
@covestro.com

Covestro and Hesse produce life cycle assessment of wood and furniture coatings

Improved CO₂ footprint achieved through rapid drying

Bayhydur[®] quix makes particularly sustainable water-based PU wood coatings possible

A [life cycle assessment study](#) conducted by [Covestro](#) and coatings manufacturer [Hesse](#) reveals that water-based wood coatings containing the hardener Bayhydur[®] quix 306-70 have a significantly lower CO₂ footprint than conventional water-based PU coatings. The study focused on analyzing the life cycle assessment of different polyurethane wood coatings from raw material production to the applied coating, in order to demonstrate the environmental impact of these systems and to reveal advantages and disadvantages for each technology.

Formulations with Bayhydur[®] quix 306-70 dry as quickly as those with solvent-based crosslinkers, in contrast to coatings with low-VOC, water-based standard hardeners. This not only allows the wood and furniture industry to process their products quickly after coating, but also reduces the CO₂ footprint, which in the case of 2K PU wood coatings is mainly influenced by energy consumption during the drying process.

Covestro will be presenting the study at the [European Coatings Show Conference 2021](#) and during [Digital Expo 2021](#), from September 14-16. Further explanations will be provided in the webinar with wood and furniture coating expert Dr. Berta Vega Sánchez on September 15, starting at 10 a.m. CEST.

Up to 25 percent less CO₂ emissions



Waterborne 2K PU systems based on Bayhydur[®] quix 306-70 emit up to 25 percent less CO₂ equivalents during their production and application compared to corresponding solventborne systems. Conversely, water-based standard systems reduce CO₂ emissions by around 8 percent in comparison with solvent-based systems.

A significant reduction in CO₂ emissions of up to 60 percent compared to solvent-based polyurethane coatings can be achieved when drying is powered by electricity from renewable sources instead of standard electricity from the grid. In this case, the coating composition is the main contributor to the carbon footprint, with water having a negligible carbon footprint compared to organic solvents.

"Regardless of the hardener used, further sustainability factors speak in favor of water-based wood coatings," says Dr. Berta Vega Sánchez, Marketing Manager and Sector Lead Industrial Coatings at Covestro: "The study demonstrates that water-based systems contribute less to photochemical ozone formation at ground level than solvent-based wood coatings owing to their significantly lower VOC content."

Dr. Sven A. Thomsen, Head of R&D at Hesse GmbH & Co. KG, points out, "Together we proved it is possible to produce a low VOC furniture coating without sacrificing on quality or drying speed. Our lifecycle assessment study also showed that using Bayhydur[®] quix as a drop-in alternative solution to solvent-borne coatings, the carbon footprint can be improved significantly."

Properties as good as solvent-based coatings

In terms of their property profile, water-based wood coatings based on Bayhydur[®] quix 306-70 are in no way inferior to the best solvent-based systems: they feature a polished appearance and are highly resistant to coffee, red wine, mustard, ethanol and water. In addition, coatings manufacturers can replace the crosslinkers in existing formulations with the fast hardener without having to invest in processes or equipment.

The introduction of water-based 2-component polyurethane (PU) wood and furniture coatings marked a major milestone in sustainability years ago. They emit less than 100 grams per liter of volatile organic compounds (VOCs). Their solvent-based counterparts, by comparison, release more than 500 grams of VOC per liter. The life cycle analysis shows that the CO₂ footprint can also be further improved for waterborne PU wood coatings. The results of the study are representative for the systems investigated and depend on the assumptions made, for example formulations, solids content, overspray and drying conditions.



About Covestro:

With sales of EUR 10.7 billion in 2020, Covestro is among the world's largest polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative, sustainable solutions for products used in many areas of everyday life. In doing so, Covestro is becoming fully circular. Its main customers are the automotive and transport industries, the construction industry, the furniture and wood processing industries, and the electrical, electronics, and household appliance industries. Other sectors include sports and leisure, cosmetics, healthcare and the chemical industry itself. As of the end of 2020, Covestro produces at 33 sites worldwide and employs around 16,500 people (converted to full-time positions).

Forward-looking statements

This press release may contain forward-looking statements based on current assumptions and forecasts made by Covestro AG management. Various known and unknown risks, uncertainties, and other factors could lead to material differences between the actual future results, financial situation, development, or performance of the company and the estimates provided here. These factors include those discussed in Covestro's public reports. These reports are available at www.covestro.com. The company assumes no liability whatsoever to update these forward-looking statements or to make them conform to future events or developments.