



BAYHYDUR® QUIX ULTRA ENABLES LOWER CARBON FOOTPRINT FOR WOOD COATINGS

Bayhydur® quix ultra

Sustainability is becoming more and more important to society and business. The furniture industry has long been a front-runner in the implementation of waterborne solutions as an alternative to solvent-borne systems. But do those low VOC alternative solutions have a lower carbon footprint?

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Task: Explore which coating system has a smaller environmental footprint

As the focus on sustainability grows in the wood and furniture sector, water-based coatings with lower volatile organic compounds (VOCs) are replacing solvent-based polyurethane coatings. But are water-based more sustainable than solvent-based polyurethane coatings? We teamed up with German leading coating supplier Hesse in order to measure the environmental impact of different conventional curing polyurethane coatings along the lifecycle and to identify the main lever of each technology.



Challenge: Reduce carbon footprint without sacrificing drying speed and performance

VOC emissions for water-borne coatings are less than 100g/l, a clear drop compared to >500g/l for solvent-based lacquers. However, switching to water-based coatings normally also means longer drying time and increased energy consumption. Before this study, little lifecycle assessment data existed that proved that water-borne polyurethane coatings do in fact generate a lower carbon footprint. Bayhydur[®] quix ultra, our fast-drying hardener, helped change the outcome and increased the water-based environmental benefit.



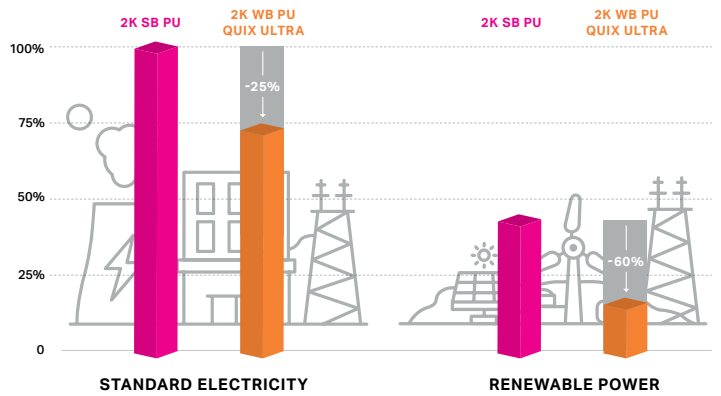
Solution: Fast-drying Bayhydur[®] quix ultra for lower emissions over lifecycle

When tracking the lifecycle carbon footprint from cradle to application gate, including application and drying, standard 2K water-borne polyurethane systems (2K WB PU) showed a slight improvement of around 10% in CO₂ emissions in comparison to 2K solvent-borne polyurethane (2K SB PU). This improvement can be increased up to 25% simply by using Bayhydur[®] quix ultra, our patented low VOC water-based hardener that dries as quickly as aromatic solvent-borne crosslinkers. When renewable electricity powers the drying instead of standard electricity from grid, a significant reduction up to 60% of CO₂ emissions versus solvent-borne polyurethane coatings can be achieved. And as 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 ultra as a drop-in alternative solution to solvent-borne coatings, the carbon footprint can be improved significantly."



Bayhydur[®] quix ultra, our patented low VOC water-based hardener, dries as quickly as aromatic solvent-borne crosslinkers, unlocking a reduced carbon footprint.

Carbon footprint [kg CO₂ eq/m²] / relative scale %



In cooperation with



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