

Renewable Material Conference 2026

Abstract call

Preserving Nature's Chemistry to Enable High-Performance Renewable Materials

Bloom Biorenewables, an EPFL spin-off based in Switzerland, is advancing sustainable, cost-competitive, and high-performance bio-based materials. Its proprietary Aldehyde-Assisted Fractionation (AAF) technology enables the efficient conversion of lignocellulosic biomass, including cellulose, hemicellulose, and lignin, into high-value ingredients for applications in cosmetics, fragrances, home care, construction, and packaging. By preserving key molecular structures during processing, the platform can reduce CO₂ emissions by up to 90% compared with conventional petrochemical routes while maintaining industry-level performance and cost targets. The technology has reached TRL 6 and is attracting strong interest from major industrial partners.

Bloom's approach enables the production of high-purity, high-quality materials, leading to several recent breakthroughs. These include the first white lignin polymer, which overcomes the traditional colour limitations of lignin and opens new opportunities in cosmetic formulations; a fully bio-based wood adhesive derived from preserved native biomass functionalities; a sugar-based solvent featuring low VOC emissions, high boiling point, and broad solubility; and a high solid content microfibrillated cellulose, broadening the MFC market possibilities.

By delivering bio-based solutions that match or outperform petrochemical standards in both performance and cost, Bloom supports resource efficiency and circular economy principles. Ongoing efforts focus on scaling production to the ton scale and optimizing separation and purification processes to meet commercial requirements, positioning Bloom as a key player in the transition toward sustainable chemicals and materials.

