

Revolution in biomaterials production

CH-Bioforce provides a completely new way of replacing fossil- and food-based raw materials

The times of wasting biomass resources are over. CH-Bioforce, a Finnish start-up founded by experienced wood chemists, has developed a novel approach to fractionating biomass and converting all of its components into high-value material streams.

Developed by CH-Bioforce, the technology is able to fractionate biomass into its three main constituents, with a high degree of purity and in an economically profitable way. CH-Bioforce's biomaterials (dissolving pulp, polymeric hemicellulose and sulphur-free lignin) can replace oil- and food-based raw materials in multiple areas such as textiles, packaging and cosmetics.

– Our deep understanding of fundamental biomass chemistry allows us to provide high-end biomaterials that are cost efficient and environmentally friendly. We are able to provide a completely new source of feedstock for various industries that, in turn, helps minimise their carbon footprint, says the company's Co-founder and Chief Business Officer **Sebastian von Schoultz**.

This is the future: sustainable options rather than oil- and food-based raw materials

CH-Bioforce's technology extracts all three biomass constituents in the same process, which is something that none of the other technology solutions in the market have managed to do so far. Due to the lack of suitable technologies, hemicellulose and lignin tend to be burnt to generate energy, despite their extraordinary material properties.

Furthermore, while viable investments in current pulping technologies go into the billions, CH-Bioforce is flexible in size and profitable also on a smaller scale. And it can utilize almost any kind of biomass as feedstock, for example birch, pine or spruce.

– The process also works well using low-quality wood and agricultural residues such as straw, which were not suitable for commonly used pulping processes in the past. We are able to turn the whole spectrum of biomass sources into high-end, bio-based raw materials that are cost efficient and environmentally friendly, says von Schoultz.

From everyday products to medical applications – the possibilities are endless

Together with its partners, CH-Bioforce has conducted intensive material testing and evaluations on the dissolving pulp, polymeric hemicellulose and sulphur-free lignin produced in its pilot plants. Thanks to funding from the EU's Horizon 2020 SME Instrument, the company is now taking the final steps towards entering the market.

– Textiles and packaging are the most obvious examples of applications where our biomaterials can be used, but there is also a huge amount of potential in a number of other fields such as bioplastics, medical applications and stabilizers for the food and cosmetic industries, says von Schoultz.

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