HIGH PERFORMING FIBRES FROM ANNUAL CROPS THROUGH IONIC LIQUID FRACTIONATION

Softwood trees require up to 80 years to reach pulping maturity; eucalyptus takes 8. Wheat straw and other annual crops mature in a single year and are generated as an unavoidable co-product of global food production. Despite this abundance, agricultural residues have historically failed to deliver the fibre quality required for high-performance packaging or dissolving pulp applications. Lixea's ionic liquid process, developed at Imperial College London and commercialised by Lixea, changes this.

Lixea's process is an ionic liquid-based biomass fractionation platform that cleanly separates cellulose, lignin, and hemicellulose co-products from feedstocks including wheat straw, sugarcane bagasse, but also hardwoods and softwoods. With near-complete ionic liquid recovery (demonstrated after 3.5 years of pilot operation), the process achieves both high material yield and cost efficiency.

The presentation will share measured pulp data demonstrating that Lixea wheat straw pulp achieves compressive and tensile strength indices competitive or exceeding commercial softwood kraft grades and at the same time qualifies for Lyocell fibre spinning. A very unique combination, especially for wheat straw-derived pulp. Dissolving pulp characterisation data will also be presented, supporting qualification pathways for Lyocell and viscose textile applications.

Taken together, these results position annual crop residues as a credible, scalable, and supply-secure alternative to tree-based pulp — with the potential to fundamentally reshape the feedstock economics of both packaging and textile fibre supply chains.

Figure 1 – Lixea Lyocell fibres

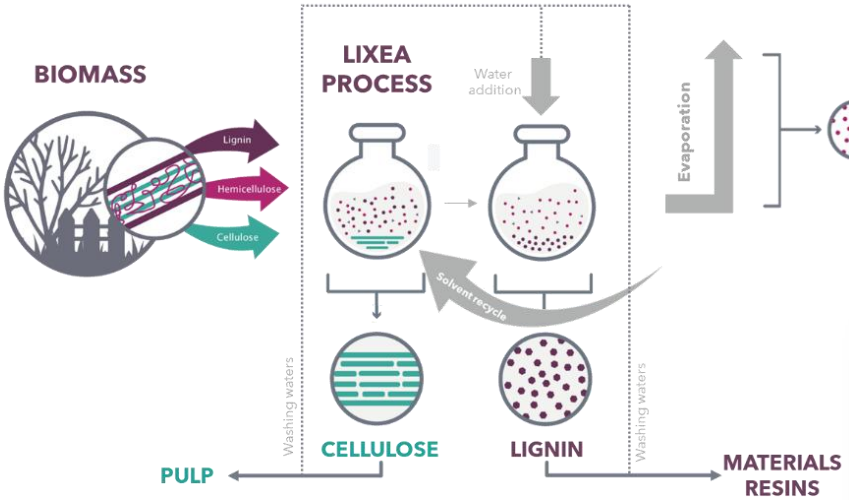

Figure 2 - Lixea's process: basic outline

Figure 3 – Examples of wet-moulded fibre trays and liner board papers