Cellulose Fibres Conference 2025 - Call for abstract

Unlocking the full potential of biomass in the production of MMCF using the revolutionary Lixea Dendronic® process

The Lixea Dendronic® process, based on innovative chemistry from Imperial College London, is a highly versatile, cost efficient and sustainable biomass fractionation technology. It utilizes low-cost ionic liquids to efficiently separate lignocellulosic materials into their main components: cellulose, lignin, and hemicellulose-derivatives. The process has been demonstrated in pilot scale at Lixea's plant in Sweden since spring 2022, proving the robust recycling of the ionic liquid and making significant progress in product development of both the cellulose pulp and the lignin.

Recent efforts have focused on producing dissolving pulp grades and utilizing them for spinning viscose fibres intended for textiles. Leveraging the inherently low hemicellulose content of Lixea's fibres, we have successfully demonstrated the production of spinnable viscose fibres using wheat straw as a feedstock, processed directly in our pilot facility. This achievement highlights the flexibility of the Lixea process to handle a wide range of biomass inputs, such as agricultural residues, and underscores its potential in supporting the transition to bio-based and circular materials. The inherent tuneable lignin solubility of the process also enables the production of hydrophobic fibres.

This presentation will provide an overview of our latest developments, focusing on the properties of the cellulose produced by Lixea and their applicability in MMCF production. Given the feedstock flexibility, robustness and cost efficiency of the Lixea technology, it has the potential of revolutionizing the industry by unlocking vast amounts of previously unavailable feedstock sources.

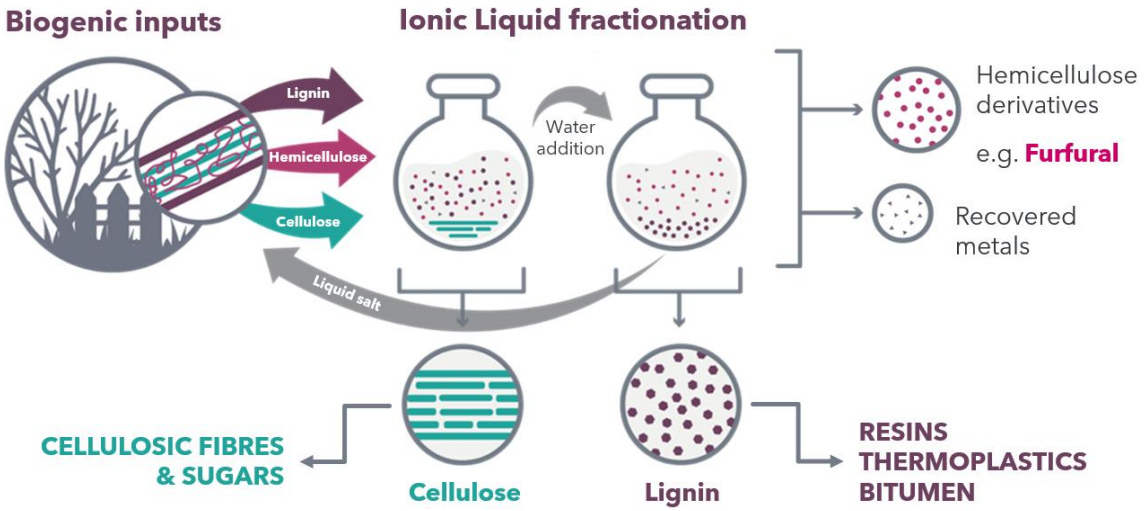

Figure 1 - The Lixea Dendronic process basic outline

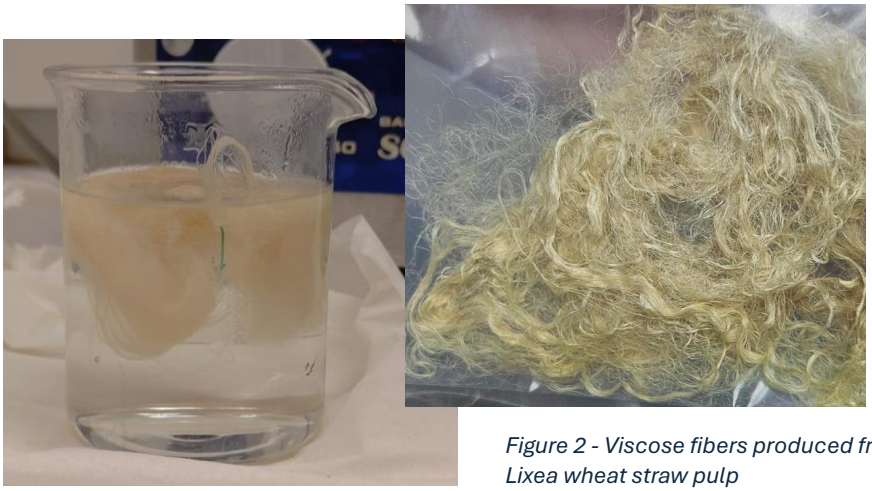

Figure 2 - Viscose fibers produced from Lixea wheat straw pulp