Challenge and opportunity of developing a lignin supply chain

The second consortium meeting of BioFibreLoop took place in June 2025 in Tampere, Helsinki, marking a milestone in the project's first year. BioFibreLoop's partners came together to share progress, including a major technical achievement: the German Institutes for Textile and Fibre Research (DITF) successfully spun fibres from lignin, blended with cellulose. This breakthrough, however, came with a particular challenge: securing a reliable supply of suitable lignin from suppliers in European wood refineries. Unlike cellulose, lignin is not a standardised raw material.

'Basal lignin', which refers to lignin that has been extracted but not further modified, varies widely in properties and therefore also in quality depending on the extraction process. Not all lignin basal types are suitable for textile applications, and recent market changes have made sourcing even more difficult. Several small supplier companies founded a few years ago with special high-quality lignin types no longer exist, and larger ones often do not produce the required grades.

Lignins are available in various qualities. Only a few are suitable for spinning fibers or for coating yarns and textiles. ©DITF

To address this, DITF conducted a thorough analysis of available suppliers. This included testing material suitability using rheological analyses, particularly the ability to draw fibres in thermoplastic spinning process and film forming in coating. Given BioFibreLoop's ambition to see its bio-based textiles adopted by 20% of the textile industry, the volatility of the lignin market poses a tangible risk. Several small companies that have developed high-quality lignin variants in recent years have had to close their businesses. However, with new wood refinery plants are currently being built or commissioned in Europe. BioFibreLoop's need of lignin supply will be most likely covered.

"Our good research results on the use of lignin in textile products together with the great market potential will strongly motivate the establishment of biorefineries for suitable lignin variants in Europe."

Thomas Stegmaier (DITF), Technical Coordinator

The development of a robust lignin supply chain goes beyond BioFibreLoop's success: Lignin suppliers have a chance to secure stable demand for large quantities by introducing lignin into a mass textile market. As more lignin-based products might enter the market, also supported by European legislation favouring bio-based products, there is a high potential to build resilient, circular supply networks. This development would strengthen the bio-based supply networks of the European textile industry increasing the resilience of value chains in textile industry to external factors.

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Project facts

The BioFibreLoop project (number: 101130603) has a duration of 42 months (start: 01 June 2024), a participation of 13 partners and a total budget of 7 million euros (funded by the EU with 6.5 million euros).

For further information, please visit the website (https://biofibreloop.eu/) and/or contact the project coordinator Thomas Fischer (e-mail: thomas.fischer@ditf.de), DITF.

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