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## Lignin valorization by making aromatic chemicals and materials

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**B** and products used worldwide. The fight against climate change has convinced many brand-owners to push for more renewables to be incorporated in their product ranges. Furthermore the strong growth of shale gas as energy and feedstock source has demonstrated that the traditional C<sub>3</sub> feedstock for aromatics is reduced at the origin. The need for alternative sources for this multiple of products is driven as well by supply as demand. The purpose of this study is to describe the potential of lignin as feedstock for novel polymers and foams. Starting from the insight in potential lignin sources and the variations in de-polymerization technologies available, a set of functionalized monomers and oligomers are prepared as the starting point for the polymerization process. Additional introduction of epoxide groups or the introduction of lignin as a polyol in the urethane approach led to new structures. The presence of residual functional groups on the lignin segments contribute to variations in the physical mechanical properties of the polymers. Simultaneously with the technical evaluation of the potential innovative materials for different applications, an economic analysis of these material developments is integrated in the study in order to safeguard the potential introduction of the innovative technologies in existing applications of aromatic polymers. The widespread availability of lignin in many different places in the world is creating great opportunity to simultaneously develop new materials without dependency on oil as a feedstock but also as a contribution to fighting climate change. Simultaneously, a complete new value chain is being developed creating great new business opportunities for new actors in the world.

## Biography

Walter Eevers is the Director R&D for the Flemish Institute for Technological Research and is the Visiting Professor of Polymer Chemistry at Antwerp University. After obtaining his PhD and MBA he worked for 20 years as Director R&D and Innovation at Nitto. He has over 30 publications and patents on innovations in polymer and material developments. Furthermore, he has been involved in several spinoff companies in innovative technologies derived from VITO's research activities. Recently he had set up a new research group dedicated to incorporation of lignin based monomers and oligomers for materials developments replacing fossil based aromatic building blocks. Furthermore he has been one of the founding fathers of the CO2 Value Europe Association that endeavors the full acceptance of the utilization of CO2 a valuable building block for innovative chemistry.

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