

## Bio-based Polyols for the Polyurethane Industry

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Renewable resources have become a modern trend during the last decade. The natural oils have long been considered as raw materials for polyols in the polyurethane industry. However, it seems that the low crude oil price, unstable prices of bio based polyols and fluctuations of natural oil supply has been a business stopping point in this field. Polylabs bio based polyols are based on the technology that allows to compete with petrochemical polyols and their price is well below other bio-based polyols.

Polylabs has been founded in 2014 in partnership with the Institute of Wood Chemistry of Latvia. A brief history of Polylabs and the Institute along with a business case will be presented to show the way of an innovation into market via a start-up company.

Polylabs produces polyols with high bio-carbon content from rapeseed and tall oils by esterification/amidization process with alkanolamines. These polyols possess auto-catalytical properties that allows significantly reduce the catalyst amount needed in PU formulations and makes them especially suitable for fast curing rigid PU systems. The use of these polyols has been investigated in rigid PU spray foam formulations, where properties of the obtained foams were comparable to petrochemical materials.

Synthesis technology, characteristics of polyols and properties of obtained PU foams from bio based polyols will be presented. Polylabs bio polyols were used to develop and produce spray applied rigid PU foam and their thermal conductivity, apparent density, compression strength and morphology were tested.

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