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## Monomers and Polymers Based Renewable Materials

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Prior to the background of reduced resources for raw materials and reduced green house emissions, the access to chemically important building blocks based on renewable resources has gained attention. From an economic point of view polymers, fine chemicals e.g. adhesives and surfactants, fibres and lubricants could be of real interest for the industrial use or renewable raw materials.

For the use of renewable resources in polymers three strategies can be recognised. First of all natural polymers e.g. starch or cellulose are slightly modified for industrial applications. Secondly renewable raw materials can be converted by gasification to syngas. In a following step the syngas is converted to hydrocarbons (monomers) via Fischer Tropsch synthesis. The third route, which will be presented, comprises the optimal use of the structure of the renewable raw materials given by nature through hydrothermal processing to monomers followed by polymerisation.

By hydrothermal processing ( $T=150-350^{\circ}\text{C}$ ,  $p=220$  bar, water as solvent) sugars, starch and cellulose can be converted first to polyalcohols, hydroxymethylfurfural and furfural in an economic (continuous and catalytic process) and ecological way. Based on this polyurethanes, polesters and polyamides can synthesised which demonstrate properties similar to polymers based on petrochemicals.