

Lecture 14 Biomass to Parts

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There are a lot of biomass chemical conversion products. They range from cell wall polymers like cellulose and lignin to much smaller things like sugars and chemicals like furfural. It is important to appreciate the wide range of commodity, specialty, and fine chemicals that can be produced from biomass using chemical conversion processes. From a conversion perspective, chemical conversions are more sensitive to the type of biomass, but they are also more accurate and precise and as a result they can produce a very high quality, predictable product. We can expose biomass to many different kinds of chemicals and conditions and to get it to turn into a variety of things. In general biomass is broken into its parts using acids, bases, solvents, or enzymes. It is interesting to consider that we have been chemically breaking biomass into its parts for well over 100 years, so a lot of these ideas are not new, but back then they didn't have the technology we have today, so we can do a lot more with those ideas. Chemical processes get complex because unlike thermal processes they have a lot of steps. To help with this complexity it is important to remember what biomass looks like cellularly and chemically. Most of the time we practice biomass chemical conversions we are trying to isolate and collect the fibers used to make paper and they are composed of cellulose. So, most of the processes discussed in this biomass to parts lecture are related to removing all the cellular stuff around the fibers so that we can have piles of just the pure fiber to work with.

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□□□□□□□□□□ An Introduction to Bioenergy & Biofuels