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Clean Fractionation

Biorefinery production costs are driven by efficient pretreatment processes. To help lower production costs, researchers at the National Renewable Energy Laboratory (NREL) have developed an efficient biomass pretreatment process—clean fractionation.

Description

Clean fractionation is a process for upgrading biomass feedstocks for a biorefinery by separating the cellulose, hemicellulose, and lignin into pure streams for conversion into value-added products.

The technology uses a mixture of an organic solvent and water to cleanly separate these three major components of biomass. Through this solvent fractionation technique, the extraction efficiency is improved, which reduces conversion times and increases yields, allowing the biomass to be processed more economically. It also allows for a wide variety of biomass feedstocks to be used to produce a variety of chemical products for many industries.

Applications and Industries

- Ethanol
- Pulp and paper
- Chemical
- Food processing
- Packaging
- Fuels

Benefits

- Lowers ethanol production costs by significantly reducing fermentation times and increasing yields
- Enables hemicellulose and lignin to be used for production of other value-added chemicals (i.e., Xylitol from hemicellulose)

Development Stage

Prototype for pilot production

Intellectual Property Status

One U.S. patent issued, additional intellectual property

Awards

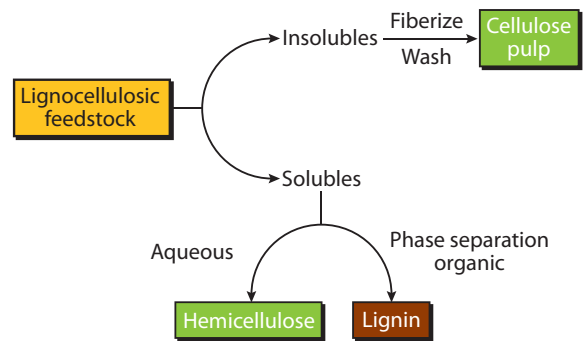
"Notable Technology Development," Federal Laboratory Consortium for Technology Transfer, 2005

More Information

For more information about our licensing agreement process, visit the NREL Technology Transfer Web site at www.nrel.gov/technologytransfer/.

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The clean fractionation process



The clean fractionation process can be used for many biomass feedstocks.

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