

Lignocellulose Biorefinery Engineering



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Lignocellulose biorefinery encompasses process engineering and biotechnology tools for the processing of lignocellulosic biomass for the manufacturing of bio-based products (such as biofuels, bio-chemicals, biomaterials).

The path forward for lignocellulose biorefineries ...

A biorefinery is a refinery that converts biomass to energy and other beneficial byproducts (such as chemicals). The International Energy Agency Bioenergy Task 42 defined biorefining as "the sustainable processing of biomass into a spectrum of bio-based products (food, feed, chemicals, materials) and bioenergy (biofuels, power and/or heat)". As refineries, biorefineries can provide multiple ...

Biorefinery - Wikipedia

Lignocellulose refers to plant dry matter (), so called lignocellulosic biomass. It is the most abundantly available raw material on the Earth for the production of biofuels, mainly bio-ethanol. It is composed of carbohydrate polymers (cellulose, hemicellulose), and an aromatic polymer (). These carbohydrate polymers contain different sugar monomers (six and five carbon sugars) and they are ...

Lignocellulosic biomass - Wikipedia

ZELCOR – Zero Waste Ligno-Cellulosic Biorefineries by Integrated Lignin Valorisation. The ZELCOR project aims at demonstrating the feasibility of transforming lignocellulose biorefinery recalcitrant side streams into high added-value biobased products, including fine chemicals.

ZELCOR | Home

Most lignocellulose-derived inhibitors form during pretreatment when hemicelluloses and/or lignin are solubilized and degraded (). Extractives and cellulose that is unintentionally affected by the pretreatment are other sources (). Since the formation of inhibitory substances is much dependent on the pretreatment process, this review includes a brief discussion on the most commonly used ...

Pretreatment of lignocellulose: Formation of inhibitory by ...

Dr. C. Zetzl . As the petrol era is facing its end, new resources for base chemicals, polymers and energy production need to be explored. Therefore, the conversion of biomass to high value products such as fine chemicals and biofuels has recently attracted the interest of scientists from academia and industry.

Biorefinery | V8

Graphic from this issue of ACS Sustainable Chem. Eng.. A sustainable and scalable method for the bulk polycondensation of aliphatic diols at high temperature using a noneutectic acid-base organocatalyst containing 3 equivalents of methanesulfonic acid and 1 equivalent of 1,5,7-triazabicyclo[4.4.0]dec-5-ene for the production of aliphatic polyethers.

ACS Sustainable Chemistry & Engineering (ACS Publications)

- Piping Design for the Overhead Yard of various Integrated Steel Plants for various utilities.
- Development of codes for the piping design for in-house use.

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The lignin-first concept offers an opportunity to utilize the entire lignocellulosic biomass efficiently. However, current conversion strategies rely on high-temperature hydrogenolysis by ...

Solar energy-driven lignin-first approach to full ...

Lignin is the main cause of lignocellulosic biomass recalcitrance to industrial enzymatic hydrolysis. By partially replacing the traditional lignin monomers by alternative ones, lignin ...

Introducing curcumin biosynthesis in Arabidopsis enhances ...

(Lignifizierung). Etwa 20 bis 30 Prozent der Trockenmasse verholzter Pflanzen bestehen aus Ligninen, damit sind sie neben der ...

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