TECNICAS REUNIDAS

BIOREFINERY PROCESSES FOR PRODUCTION OF HIGH ADDED VALUED PRODUCTS FROM LIGNIN

(PROYECTO LIGNOPRIZED)

PROJECT FACT SHEET

LIGNOPRIZED

MINISTERIO DE ECONOMÍA, INDUSTRIA Y COMPETITIVIDAD

CDTI Centro para el Desarrollo Tecnológico Industrial

Call	Programa Estratégico de Consorcios de Investigación Empresarial Nacional (CIEN)
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Partners	TECNICAS REUNIDAS, ence ENERGÍA & CELULOSA, BASF We create chemistry, abn, Biopolis, UBE, GRUPO ADI

DESCRIPTION

In order to reduce dependency on fossil and non-renewable raw materials, lignocellulosic biomass presents an important role derived from its abundance (different sources available) and its versatility to be processed and used in various applications and value added products. From this, lignin, being one of its main components (15-40%), is considered as a resource with ample potential. The combination of several functional groups in each native lignin structural unit gives this macromolecule the possibility to participate in a broad spectrum of chemical reactions that facilitate its use for the development of high added value products.

The LIGNO PRIZED project deals with the development of a complete lignin recovery process, from the extraction of lignin from black liquor from pulp kraft process and lignocellulosic biomass of both grassy type (rice straw) and woody (Eucaliptus globulus or common eucalyptus) to their modification to suit the applications of interest (plasticizers for construction, polymeric compounds, polymeric precursors and biopolymers and additives for the textile sector) and the development of such applications.

Within this framework, Técnicas Reunidas focuses its efforts on:

- Developing a chemical process of direct extraction of Klason lignin from lignocellulosic biomass, opting to complete an integral biorefinery process capable of valorizing the three fractions present in this type of biomass: cellulosic, hemicellulosic and ligninic fractions.
- Optimizing new methodologies for extraction and purification of lignin from black liquors generated in the Kraft process prior to its subsequent scaling-up.

- Developing a process based on the use of new heterogeneous catalysts for the depolymerization of lignin and production of high value monomers such as vanillin.
- Develop derivatization processes aimed at modifying Kraft and Klason lignins for use in high added value applications.
- Integrating and scaling-up to pilot plant a process of extraction of purified lignin obtained from Kraft process black liquors.