

Technology Offer

Technology and pilot station for biodiesel production from soy oil resulted as by product in the technological process of obtaining soy proteins

Summary

A research institute from Romania has developed a technology and a pilot station for production of biofuels from soybean oil by using the transesterification reaction with methanol and NaOH (sodium hydroxide) or KOH (potassium hydroxide) as catalyst, in enzymatic catalysis. The institute is looking for commercial agreement with technical assistance (engineering and technical assistance) with an industrial partner to design and build the pilot station on which to transfer the proposed technology.

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Details

Description

Biodiesel has become very popular in the last decade as a renewable biofuel, obtained from renewable sources, the so-called "domestic" fuels, such as vegetable oils and animal fats. The biodiesel fuel presents a series of advantages over the classic Diesel fuel derived from petroleum, being less polluting, biodegradable and made from renewable sources. Chemically speaking, the biodiesel is described as a mono alkyl ester. During the chemical process of transesterification, the oils and fats react with methanol, having sodium or potassium hydroxide as catalyst (NaOH or KOH), thus resulting fatty acid methyl esters along with the following by-products: glycerin, glycerin residue, soluble potassium carbonates and soaps.

The pilot station is designed as an integrated system for materials processing, to obtain biodiesel fuel, being equipped with containers for raw and processed material storage, as well as with specific equipment for technological processing of raw materials.

Characteristics of the proposed pilot station:

- Production capacity of 200 kg/batch;
- Controlled temperature range: 20 to 80°C.

The institute is looking for commercial agreement with technical assistance with an industrial partner to design and build the pilot station.

Advantages and Innovations

The proposed technology is based on the transesterification reaction at a temperature of 58-62°C of the vegetable oil soy combined with methyl alcohol in a ratio of 14-17% of the oil, using as catalyst sodium or potassium hydroxide. By applying the developed technology, the water consumption to process a quarter classical procedures is reduced. The proposed pilot station has a modular structure, whose modules can be incorporated into a new installation with

increased capacity.

The tests made on the obtained biodiesel indicate its compliance with the standard limits, for all physico-chemical parameters.

Advantages:

- simple exploitation;
- safe functioning;
- easy maintenance.

Stage of Development

Under development/lab tested

IPR Status

Other

Keywords

Technology

04005003 Liquid biofuels

Market

06007001 Other energy production
09001002 Trucking

NACE

M.72.1.9 Other research and experimental development on natural sciences and engineering

Network Contact

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Open for EOI : Yes

Dissemination

Send to Sector Group
Intelligent Energy

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

0

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

Romanian
English

Client Country

Romania

Partner Sought

Type and Role of Partner Sought

- Type of partner sought: industry
- Specific area of activity of the partner: Renewable energy / Biofuels production

- Task to be performed by the partner sought: In the commercial agreement with technical assistance, the partner will scale-up the technology, using appropriate equipments and qualified personnel. The Romanian research institute will support its partner with effective start-up and technical consultancy.

Type and Size of Partner Sought

R&D Institution

Type of Partnership Considered

Commercial agreement with technical assistance