

Thermocatalytic valorisation of organic residues

Description

A variety of installations to conduct research on the thermal and catalytic pyrolysis of organic feedstocks are offered. At IMDEA Energy different configurations of pyrolysis reactions systems are available, from lab-scale fixed-bed (5-20 g) to bench-scale (\approx 1-2 kg/h) fluidized bed facilities. We are looking for commercial and/or research cooperation agreements.

Valorisation of organic residues and feedstocks of different nature by means of thermal/catalytic pyrolysis for the production of oils with potential applications as fuels or raw chemicals.

IMDEA Energy has a number of facilities to conduct customized research on the pyrolysis of organic residues and materials (lignocellulose, OFMSW, plastics, etc.). For that purpose, different experimental set up, from lab-scale fixed-bed (5-20 g) reactors, operating either in batch or with continuous solids feeding, to a bench-scale (\approx 1-2 kg/h) fluidized bed facility are available. Those facilities can operate under thermal or catalytic conditions, with both in-situ and ex-situ configurations.

IMDEA Energy develops its own catalytic materials (e.g. zeolites) with different acid-base and textural properties for such applications.

Moreover, a diversity of analytical techniques and procedures have been optimized and even created to ensure a complete monitoring of the processes in terms of products yields and properties.

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Advantages and Innovations

Compared with industrial pyrolysis facilities, our pyrolysis units provide extremely controlled experimental conditions and enable the evaluation of a wide range of organic materials. The optimized analytical techniques available allows accomplishing mass and energy balances, and determination of products composition with high certainty.

Flexible operation in terms of the residue nature (lignocellulose, OFMSW, plastics, etc), operating modes (batch or continuous) and reaction conditions (temperature, residence time, pressure, etc.) and working time, makes our set up particularly adapted to test and valorise residues for commercial as well as research purposes.

Market Applications

- Evaluation of the thermochemical valorisation of residues by thermal/catalytic pyrolysis.
- Testing of catalytic materials for pyrolysis processes.
- Testing of catalytic materials for hydrotreatment of pyrolysis oils.

