Laboratory scale batch microwave pyrolysis reactor

Description/Parameters

A laboratory scale microwave pyrolysis reactor is mainly used for the thermal decomposition of materials (biomass, plastics, etc.) using microwave heating. In order to heat the material to a high temperature, it is necessary to add a microwave adsorbent - most often a carbonaceous material produced by conventional pyrolysis. The microwave reactor is followed by a cooler and a condensate container. The gas is cleaned in a series of wash flasks before being captured in Tedlar bags.

Utilization/Services

A laboratory scale batch microwave pyrolysis reactor is primarily used to determine the mass balance of microwave pyrolysis of waste materials. The materials can be both waste biomass and waste polymers. Pyrolysis produces three main products - pyrolysis gas, liquid condensate and solid carbonaceous residue. All the pyrolysis products are collected and subjected to further analyses.

- Temperature can be measured, but not regulated.
- The final temperature depends on the power of magnetron and the type of carbonaceous material (usually 600-800°C).
- Material feed from 10 to 50 g.

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