NATIONAL INSTITUTE OF CHEMISTRY

TECHNOLOGY OFFER

ASH-FREE PELLETS FROM LOW-VALUE BIOMASS: The BiAR process

Fields of use
Green technology

Intellectual property
Patent pending

Technology Readiness Level
TRL3

Next steps needed
Testing in an industrial environment, scale-up

Partner sought
R&D collaboration to further develop the technology in an industrial environment. Licensing or sell of IP rights.

Developed by
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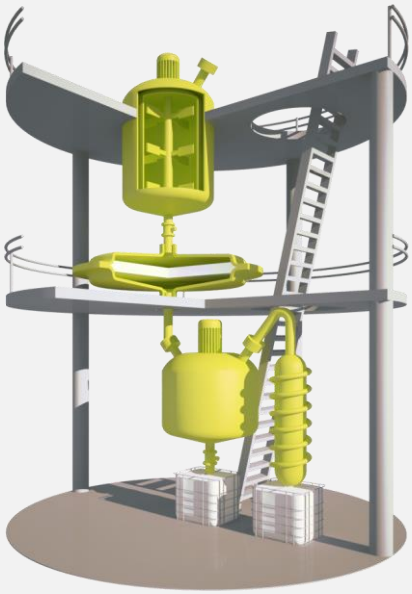
More information about the invention



Technology
BiAR (Biomass Ash Removal) process is capable to separate the organics, which are valid for energetic uses, from inorganic components, which are a limitation for energetic uses but however, contain valuable elements.

Application
Valorization of biomass (bark, straw, digestate) with ash content above fuel standard threshold (0.7 wt.% for A1 pellets).

BiAR process contains three steps:

LIQUEFACTION REACTION performed by solvolysis of biomass at moderate temperatures (175-225°C) in presence of methanol or methanol-glycerol mixture and an acidic homogeneous catalyst.

ASH SEPARATION: After the liquefaction of organic matter, separation of inorganic particles is crucial. This is done through the physical separation (filtration) or sedimentation

SOLVENT RECOVERY: the ash-free liquid mass enters a second continuous reactor where the solvent is distilled and thus fully recovered, while the depolymerized biomass remains at the bottom of the reactor and can be shaped into any solid form or left semi-liquid.

Main advantages
- Text Biomass not suitable for energetic uses can be valorized.
- Pellets can be shaped into any solid form.
- Low-energy demanding process and high calorific value of the product (21 MJ/kg).
- Isolated ash can be used as a fertilizer.

KONZORCIJ ZA PRENOS TEHNOLOGIJ IZ JRO V GOSPODARSTVO

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