Ash collecting and outputting antechamber for solid biomass

Summary

A university from Latvia in order to expand and promote the use of heating burners have invented the antechamber, which reduces getting ash into the heating system and the environment. University is offering commercial, financial or technical cooperation agreement.

Creation Date	11 October 2016
Last Update	16 November 2016
Expiration Date	16 November 2017
Reference	TOLV20161011001

Details

Description

University from Latvia, involved in agriculture sciences has developed an ash collecting and outputting antechamber for solid biomass burners. Intention of the device is to create an effective ash and un-burned solid biomass particle continuous collection before it inflows in the heating system and to discharge it into a closed tank. This objective is achieved by the creation of the antechamber, which provides hot air stream for both light and heavy particle collection and discharges them into a closed tank. Antechamber can be incorporated in a variety of solid biomass burners and boilers, reducing the particulate matter descent into the environment.
The university is offering commercial, financial or technical cooperation agreement for interested parties in order to realize the device or incorporate it into ready solid biomass burners or boilers.

Advantages and Innovations

The invention relates to solid biomass pellets turbo burner. In order to improve solid biomass ash collection efficiency of the heating burner an antechamber containing cylinder, ash deflection cone and detent mechanism is placed on the burner. Ash discharges are provided by auger. The collected ash is directed into the exhaust duct.

Stage of Development

Available for demonstration

IPR Status

Patents granted

Profile Origin

Private (in-house) research

Keywords

Technology

02003001	Process automation
07001001	Agriculture Machinery / Technology
10002001	Indoor Air Pollution/Treatment
10002007	Environmental Engineering / Technology
10003007	Waste to Energy /Resource

Market

06005002	Coal related equipment
06006002	Metering and monitoring
07004004	Housewares
07006	Other Consumer Related (not elsewhere classified)
09008002	Water, sewerage, chemical and solid waste treatment plants

NACE

P.85.4.1	Post-secondary non-tertiary education

Network Contact

Issuing Partner

ASTER - SOCIETA CONSORTILE PER AZIONI

Contact Person

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Open for EOI : Yes

Client

Type and Size of Organisation Behind the Profile

University

Year Established

0

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English
Latvian
Russian

Client Country

Latvia

Partner Sought

Type and Role of Partner Sought

University is looking for companies, organizations, institutes in order to realize the device or incorporate it into ready solid biomass burners or boilers. University is offering commercial agreement with technical assistance, financial agreement or technical cooperation agreement.

Type and Size of Partner Sought

SME 11-50,University,Inventor,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

Financial agreement
Commercial agreement with technical assistance
Technical cooperation agreement

Attachments

Waste to biofuel technology offers zero waste and value extraction solution for municipal solid waste processors

Summary

A UK based SME has a new process which derives value & products from residual Municipal Solid Waste by recovering cellulose pulp & recyclable materials. The pulp can be used as a fibre product, converted to commodity sugars which can be fermented into cellulosic biofuels or converted to other high value products. The process utilises a highly efficient liquid phase Anaerobic Digestion (AD) plant to generate bio-gas. Commercial & Technical agreements are sought to develop market opportunities.

Creation Date	28 November 2016
Last Update	29 November 2016
Expiration Date	29 November 2017
Reference	TOUK20161121001

Details

Description

The UK based SME has an innovative 'waste' recovery process which generates biogas, clean sugars and recyclable materials from Municipal Solid Waste (MSW). The process is designed to recover and recycle materials from the residual waste stream diverting them from landfill and providing associated environmental and economic benefits.
The company has developed a solution which supports the move towards a circular economy through the continual circulation of resources. The process involves pulping and washing residual MSW to recover cellulose, producing biogas (bio-methane) and dry recyclables such as rigid plastics and metals.
The washing stage of the process produces a clean, activated cellulose substrate which can either be sold as a fibre product or converted to commodity sugar via enzyme hydrolysis. The sugar can be used as a platform chemical for other markets such as fermentation to bio-ethanol.
The washwater, which is rich in soluble organics feeds a high-rate liquid phase anaerobic digestion (AD) plant which produces a high concentration (>70%w/w Methane) bio-gas without digestate production, thus removing a significant disposal issue for conventional AD/MBT (Anaerobic Digestion/Mechanical Biological Treatment) operations.
Any recyclates (metals and rigid plastics) are removed from the process for recycling.
The company is currently engaged in a high-level feasibility project to develop the process beyond demonstration stage. A small-scale pilot plant is being established in the UK to demonstrate the process and undertake further optimisation activities.
The company is interested in hearing from potential partners for R&D collaboration projects for process optimisation, commercialisation and end user/market applications.

Advantages and Innovations

There are a number of advantages and innovations which are inherent in the process.
- The process fits within the existing waste collection and treatment infrastructure as it is

designed to take residual waste. It is also possible to process Material Recovery Facility (MRF) rejects or compost-like output (CLO) from Mechanical Biological Treatment (MBT) plants.
- The recyclates recovered from the process have been cleaned in the washing plant so these products are relatively free of contamination and suitable for reprocessing.
- The process also generates heat so that the recyclates can be dried.
- The use of the liquid phase AD plant significantly reduces residence time, consequently reducing capital costs.
- The process recovers materials previously destined for landfill, which could increase recycling rates by 10 – 15% (depending on the composition of the inlet material).
- The variety of end products generated means that the process is less vulnerable to market fluctuations.
- The sugar produced can displace food grade sugar in certain applications, with associated environmental and social benefits.
- Fermenting the sugar to ethanol is a low temperature process, providing a low operating cost business model.

Stage of Development

Field tested/evaluated

Comments Regarding Stage of Development

The company are currently engaged in a high level feasibility project to develop the process beyond demonstration stage.

IPR Status

Patents granted

Profile Origin

Private (in-house) research

Keywords

Technology

02007020	Biobased materials
04005010	Integrated waste-energy processes
04006	Biogas and anaerobic digestion (AD)
06006012	Bioprocesses
10003001	Biotreatment / Compost / Bioconversion

Market

06003009	Biomass and Biofuels
08004002	Chemical and solid material recycling

NACE

C.20.5.9	Manufacture of other chemical products n.e.c.
D.35.1.1	Production of electricity
E.38.3.2	Recovery of sorted materials
E.39.0.0	Remediation activities and other waste management services
M.72.1.1	Research and experimental development on biotechnology

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Send to Sector Group

Bio Chem Tech

Client

Type and Size of Organisation Behind the Profile

Industry SME 11-49

Year Established

2008

Turnover

<1M

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English

Client Country

United Kingdom

Partner Sought

Type and Role of Partner Sought

Partners are sought to facilitate the commercialisation of demonstrator plants and the development of commercial opportunities across the MSW value chain.
This could be down-stream to resource distributors, material converters/re-processors or end users (of fibre products, commodity sugars, cellulosic biofuels & recyclate), Also up-stream stakeholders such as public sector/local authorities and pre-processors.

Type and Size of Partner Sought

SME 11-50,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

Commercial agreement with technical assistance
Technical cooperation agreement

Attachments