BRIQUETTES OF FLEXIBLE POLYURETHANE FOAM WITH LATEX OR VISCOELASTIC FOAM FOR THE ENERGY RECOVERY OF MATTRESS WASTES

PATENTED TECHNOLOGY

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ABSTRACT

The research group, " Wastes, Energy, Environment and Nanotechnology ", belonging to the University Institute of Engineering of the Chemical Processes (WEEN-IECP) at the University of Alicante, has developed a new compacted material and the procedure for manufacturing briquettes from mattress wastes (flexible polyurethane foam, latex foam and viscoelastic foam).

In view of the high calorific values of these wastes, these briquettes can be used as fuel product for industrial use, allowing their energy recovery giving hereby a solution to the build-up of mattresses in landfills. Likewise, this process would improve their transport, manipulation and storage. In addition, the fact that the conditions for the obtaining of the briquettes are not very extreme, this system could be placed in the landfill's facilities.

Companies in the mattress waste management sector, landfills or other private entities interested in the commercial development of this technology through license agreements and / or technical cooperation are sought.

ADVANTAGES AND INNOVATIVE ASPECTS

The main advantages of this technology are:

- The process allows the treatment and energy recovery of these wastes by a simple and viable form avoiding the environmental problems related to their disposal in landfills.
- The material densification in the shape of briquette makes transport, manipulation and storage of these wastes easier and cheaper.
- The obtained briquettes have high calorific values (density data based on net calorific value: Flexible PU foam briquette = 13279 MJ/m3; 90 % flexible PU foam + 10 % latex foam = 12666 MJ/m3; 82 % flexible PU foam + 18 % viscoelastic foam = 12889 MJ/m3)
- The briquettes can be used as fuel in boilers and power plants.
- This process can be applied for briquettes of any size and form.

The main innovative aspect of this technology is the manufacture of briquettes with high energetic value from polymeric materials with low operative costs and feasible operating conditions.

MARKET APPLICATIONS

The briquettes obtained by means of this procedure can be used as fuel in industrial boilers and industrial furnaces.

In addition, the pressures and temperatures to carry out the process of compaction are not excessively high, so this system might be implemented in landfills where the material is preheated from the residual heat of the combustion engines, using the biogas and even the water steam

generated can be used to move the hydraulic system to compact the material with the selected pressure.

COLLABORATION SOUGHT

Waste management companies or landfills interested in the technology exploitation through:

- License agreements of the patent granting rights of use, manufacture or commercialization of the technology to third parties.
- Research and development projects (technical cooperation agreements) for the utilization of the technology or application in other wastes or sectors.
- Subcontracting agreements (technical assistance, training, etc.)