



Fiberglass waste recycling plant – OSIM Patent Request

A100410 2021

Ion Antonescu, Dorina-Nicolina Isopescu, Iulian Cucos, Vlad-Cătălin Cucos, Ionel-Ciprian Alecu, Laurența Crudu

“Gheorghe Asachi” Technical University of Iași ion_antonescu2001@yahoo.com



SC BICO INDUSTRIES SRL Piatra Neamț

Introduction

Various devices and installations for the destruction of fiberglass waste are known worldwide and all use a melting furnace that uses as a source of heating electricity (electric furnace with resistors) or chemical energy (flame burners) because to melt Glass in general and fiberglass in particular require temperatures between 1200-1600 degrees Celsius. Also for the treatment of exhaust gases from the reactor, the solution of stationary gas in an enclosure at a high temperature is used. The technical problem solved by the invention is to destroy the fiberglass waste, with or without adhesive, at a much higher speed than the existing installations, due to the use of hydrogen plasma torches and the material obtained from the recycling process. be used as an additive in the production of bricks, mortar or other construction materials. In addition, the amount of pollutants released into the atmosphere and the amount of waste resulting from the treatment of fiberglass waste is much lower, and the energy recovery system makes it attractive from an energy and financial point of view.

Motivation and Description of Work

The invention relates to an installation with an industrial numerical control system and terminal equipment for the conversion of hydrogen to glass fiber with plasma, with and without adhesive, resulting from the technological process of manufacturing the reinforced fiberglass mesh, used in the construction real estate.

This plant is intended for use in the waste recycling industry as well as in the building materials industry, as the material obtained from the destruction of fiberglass waste, with and without adhesive, with the help of hydrogen plasma can be used as an additive. in the production of bricks, mortar or other materials in the construction industry. The plant includes, in addition to the system for converting waste into a reactor with the help of hydrogen plasma and a system for treating the gases resulting from the operation of the reactor with the help of plasma, as well as an energy recovery system. The gases resulting from the exit of the gas treatment system are used to drive a generator.

Results



Conclusions

The technical problem solved by the invention is to destroy the fiberglass waste, with or without adhesive, at a much higher speed than the existing installations, due to the use of hydrogen plasma torches and the material obtained from the recycling process. be used as an additive in the production of bricks, mortar or other construction materials. In addition, the amount of pollutants released into the atmosphere and the amount of waste resulting from the treatment of fiberglass waste is much lower, and the energy recovery system makes it attractive from an energy and financial point of view.

References

- [1] C. Yong-Nong, K. Chih-Ming, Design of Plasma Generator Driven by High-frequency Highvoltage Power Supply, Journal of Applied Research and Technology, Vol. 11, April 2013, pp. 225-234
- [2] K.P. Francke, R. Rudolph, and H. Miessner, Design and Operating Characteristics of a Simple and Reliable DBD Reactor for Use with Atmospheric Air, Plasma Chemistry and Plasma Processing, Vol. 23, No. 1, March 2003