



INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

"KEY ELEMENTS FOR A SUSTAINABLE WORLD: ENERGY, WATER AND CLIMATE CHANGE"

Thermogravimetric Analysis Of The Polyurethane Biodegradable Foam Of The Project Gasolimp Product As A Power Cogenerating Agent

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Abstract

This paper presents the results of tests made for analysis of combustion of substances that remain impregnated in biodegradable polyurethane foam resulting from continued action of the oil, after 35 days of use Gasolimp, project of a protective biodegradable foam product for fuel pump and cogeneration Power, placed in an injection pump for gasoline during the period February-March 2008, at a gas station in the city of João Pessoa – PB, Brazil. Our main objective was to diagnose the thermogravimetric properties to assess the thermal properties of a sample as a function of time or temperature. The thermogravimetry (TGA) is a method used to determine the rate of decomposition of substances used in the application of additives and organic material if you want to evaluate the thermal and oxidative stability of these. The analysis of thermogravimetry were carried out LACOM (Laboratory research in the area of fuels and materials) of the Federal University of Paraíba. This laboratory works in the area of research of new materials (pigments, catalysts and photoluminescent materials), production of biodiesel (babassu (native nut), soybean, corn, cotton, pine nuts gentle, coconut oil, frying oil), among others. The laboratory has a thermogravimetric analysis, brand TA Instruments, model SDT 2960, the rate of heating 20 ° C / min up to 600 ° C. The sample used was approximately 5.0 mg of platinum using a port in air atmosphere with 110 mL / min. The analysis of differential scanning calorimetry were performed in a differential calorimeter exploratory pressurized, mark TA Instruments, DSC Model 2920 coupled to a unit of pressure, the rate of heating of 10 ° C / min up to 600 ° C. The mass of sample, approximately 5.0 mg was placed in a door sample of platinum in oxygen atmosphere with pressure of 1,400 kPa. The thermogravimetric analysis carried out showed very satisfactory results on the content of combustion and burning of the sample, giving a residue amounting to 3% depending on the mass diagnosed. It was found also in the analysis of PDSC that the process of burning of biodegradable foam there was a release of energy of 5184 J / g. In brief and conclusive, the results obtained by the TGA tests and differential scanning calorimetry, demonstrated and proved that the Project of the Product Gasolimp as a power cogenerating agent is highly viable.

Keywords: Combustion, Power Cogenerator, biodegradable polyurethane foam, hidrocarbonet.
