عنوان مقاله:

Pelleting of Agricultural Residues in Senegal : Study of Influencing Phenomena & Chemical Elements

محل انتشار:

مجله تحقیقات انتقال حرارت و توده, دوره 10, شماره 2 (سال: 1402)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Cheikh Ahmadou Mbodji - Laboratory of Electronics, IT and Renewable Energies, Gaston Berger University, Saint-Louis, BP ۲۳۴, Senegal

Djicknoum Diouf - Laboratory of Electronics, IT and Renewable Energies, Gaston Berger University, Saint-Louis, BP ۲۳۴, Senegal

Bruno Piriou - Laboratory of Electronics, IT and Renewable Energies, Gaston Berger University, Saint-Louis, BP ۲۳۴, Senegal

Amadou Maiga - Laboratory of Electronics, IT and Renewable Energies, Gaston Berger University, Saint-Louis, BP ۲۳۴, Senegal

خلاصه مقاله:

In Senegal, biomass fuels and more specifically pellets from agricultural residues have attracted interest in recent years. These fuels are eco-friendly materials and represent a better alternative to domestic fuels such as charcoal or firewood due to their availability at local scale associated to their relative uniformity (standard size, possible formulation of several residues, higher energetic density with respect to firewood). In the present work, we produced and characterized ۶ mm diameter pellets from residues of groundnut shell, corn cob, palm nut shell and typha both in pure form or blended from two different residues. The characterizations of these pellets showed that the pelletizing of biomass residues makes it possible to significantly increase the Lower Heating Value (LHV) of single pellets. The mixture of different agricultural residues makes it possible to have a much higher heating value, with pellets with LHV greater than ۱۹ MJ/kg. We also highlight the importance of the pelletizing process in reducing the ash content for blended pellets; the opposite phenomenon is observed for single pellets. Our work also shows the importance of pelletizing and blending of agricultural residues in reducing the formation of bottom ash and corrosion.

کلمات کلیدی:

agri-residues, pellets, Combustion, biomass analysis