

Accepted Manuscript

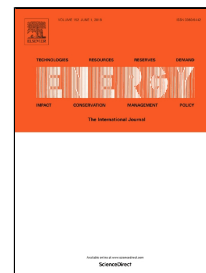
Co-liquefaction process olive bagasse and peat with lignite and the effect of biomasses on the products and oil yield

Tolga Depci, Mesut Karta, Huseyin Karaca

PII: S0360-5442(18)30941-1
DOI: 10.1016/j.energy.2018.05.115
Reference: EGY 12950
To appear in: *Energy*
Received Date: 01 December 2017
Accepted Date: 17 May 2018

Please cite this article as: Tolga Depci, Mesut Karta, Huseyin Karaca, Co-liquefaction process olive bagasse and peat with lignite and the effect of biomasses on the products and oil yield, *Energy* (2018), doi: 10.1016/j.energy.2018.05.115

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Co-liquefaction process olive bagasse and peat with lignite and the effect of biomasses on the products and oil yield

Tolga Depci^{1*}, Mesut Karta², Huseyin Karaca³

¹Iskenderun Technical University, Department of Engineering Science, 31200, Hatay, Turkey

²Borte Build Company, 06531, Ankara, Turkey,

³Inonu University, Department of Chemical Engineering, 44280 Malatya, Turkey

Corresponding author: tdepcei@gmail.com

Abstract

In the present study, instead of the burning the Elbistan lignite (L) having low calorific value and the biomasses (Balikesir Olive Bagasse "OB" and Adiyaman peat "P"), co-liquefaction process was conducted in order to produce valuable product as an oil. The effect of the biomasses ratio in the mixture on the properties of the co-liquefaction products and oil yield was also investigated in detail. The chemical characterization, composition and calorific value of the starting materials and the co-liquefaction products (char, asphaltene, preasphaltene and oil) were determined using XRD, FTIR, calorimeter, GC/MS and elemental analysis. In addition, the morphological and thermal behavior of the starting materials was also investigated by TG/DTA and SEM. The results showed that the biomasses accelerated thermolysis of the lignite due to their amount of volatile content, cellulose, hemicelluloses and lignin in the structure causing the high total conversion ratio. The highest oil yield was obtained as 39.5 % for L:P:OB (1:2:3). Calorific values of the char, asphaltene, preasphaltene and oil were determined as 1235 kcal/kg, 9080 kcal/kg, 8650 kcal/kg and 5135.19 kcal/kg, respectively. The obtained oil was identified as a paraffinic-low waxy oil whose density is 0.94 g/cm³.

Keywords: Co-liquefaction; Olive Bagasse; Adiyaman peat; Elbistan lignite

Download English Version:

<https://daneshyari.com/en/article/8071373>

Download Persian Version:

<https://daneshyari.com/article/8071373>

[Daneshyari.com](https://daneshyari.com)