EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

A COMPARATIVE STUDY OF LANTHANA MODIFIED COMO/ AL2O3 CATALYST FOR SELECTIVE DEOXYGENATION OF WASTE CHICKEN FAT FOR SUSTAINABLE PRODUCTION OF RENEWABLE FUEL

Samia A Hanafi, Ghada Eshaq and Mamdouh S Elmelawy
Egyptian Petroleum Research Institute, Egypt

Our aim was to investigate the possibilities of the production of gas oil like hydrocarbons via the selective deoxygenation (SDO) realized by hydro treatment of waste chicken fat (WCF). We applied CoMoLa/Al2O3 catalyst in its sulfide and reduced state. The reactions were carried out in a fixed bed down flow reactor at reaction temperatures: 350-450 °C, operating pressure: 3, 7 and 8 MPa, liquid-hourly space-velocity (LHSV): 2.0, 4.0 h^{-1}, at a fixed H2/feedstock ratio: 450 Nm3/Nm3 he gaseous and liquid products were analyzed using gas chromatography (GC). Selective deoxygenation of WCF has resulted to the production of nC16- nC18 hydrocarbons, i.e. a liquid mixture within the boiling point range of diesel fuel. It seems that the catalytic hydrodeoxygenation is favored over the sulfide CoMoLa/Al_2O_3 catalyst, while decarboxylation and decarbonylation are favored over the reduced CoMoLa/Al_2O_3 catalyst. Reactions including decarboxylation and decarbonylation that generate CO_2 and CO can be suppressed at higher pressure and lower LHSV. The amount of H_2 consumed during the deoxygenation was larger using the reduced catalyst owing to the methanation reaction, resulting in high dependency of product composition on the initial hydrogen pressure, temperature, as well as LHSV.

elmelawy@gmail.com