Experimental Investigation of a New Modified Catalysts (WO$_3$/Si-Zr) and (Si-Zr) for the Process of Aerosol Nanocatalysts by FCC of Residual Vacuum Distillation

Abstract-This work aims at comparing between the a new modified catalyst WO$_3$/Si-Zr and catalyst Si-Zr to obtain gasoline and diesel fraction, The new theory of aerosol nanocatalysts technology was used in the cracking of gas oil by vacuum accompanied by the vibration of the layer of the catalyst system. The one of aim of the present work is to reduce the emissions of atmosphere polluting gases such as (H$_2$S and CO). It is observed that this process is achieved at lower temperature compared to that conducted by industrial cracking process at 250°C, and lower amount of catalyst concentration in the reactor 2.38 (gm/m$^3$). This technique revealed that the selectivity of light products formation for the WO$_3$/Si-Zr catalyst is higher than that with the Si-Zr catalyst at the new technology conditions.

Keywords- Fluid catalytic cracking (FCC); aerosol nanocatalysis (AnC); gasoline fraction; diesel fraction; catalyst WO$_3$/Si-Zr; catalyst Si-Zr.