Contribution ID: **50** Type: **Poster Presenter**

Zirconia Based Heterogeneous Catalyst Development for Biodiesel Production Using Waste Cooking Oil

Zirconia Based Heterogenous Catalyst Development for Biodiesel Production Using Waste Cooking Oil
1.1 Abstract
Waste cooking oil is valuable and cheap feedstock for the production of bio-fuels as compared to virgin edible oil. It not only helps to reduce environmental impacts of waste cooking oil but can also contribute to the future energy demand. Catalysts used in this process are usually acids or bases in both homogeneous and heterogeneous processes. In most cases, sodium hydroxide and potassium hydroxide are used as alkaline catalyst and mineral acids are used as acidic catalysts in homogeneous reaction, because of their higher reaction rates, availability and low cost.
Homogeneous catalysts although cheap and efficient present a number of challenges which include but are not limited to toxicity, their corrosive nature which inevitably raises the material cost for process construction and problems regarding separation of products from the reacting mixture. On the other hand, heterogenous catalysts can be made to be nontoxic, non-corrosive and are easily separable. But the biggest advantage is that saponification reactions can also be avoided by using heterogeneous acid catalysts, which expand the raw materials to vegetable oils or animal fats with high contents of FFAs, such as deep-frying oils from restaurants and food processing. This is important from an economic point of view as virgin oils not only classify as important food stock they are also considerably expensive per unit of sale. In the present study we are investigating the activity of zirconia based catalyst on biodiesel production from waste cooking oil.

Authors: Mr KHAN, Hashim (Punjab University, Lahore); Mr QADRI, Ishaq (Punjab University, Lahore); Dr ASLAM, Rabya (Punjab University, Lahore)

Presenters: Mr KHAN, Hashim (Punjab University, Lahore); Mr QADRI, Ishaq (Punjab University, Lahore)

Track Classification: Chemical & Material Engineering