

## Production of biodiesel from palm oil using modified Malaysian natural dolomites

### ABSTRACT

Calcined dolomite (AD), produced by calcination of Malaysian dolomite (UD) promotes a potential natural catalyst for biodiesel production from palm oil with the conversion of 99.98%. The catalysts were characterized by using X-ray Diffractometer (XRD), Brunaueró EmmetóTeller (BET) surface area, Scanning Electron Microscopy (SEM) and Temperature Programmed Desorption (TPD) of CO<sub>2</sub>. All catalysts were then employed for transesterification reaction under different conditions (time, methanol to oil molar ratio and amount of catalyst). SnO<sub>2</sub> doped on activated dolomite (SD) shows an optimum conversion (99.98%) at conditions, i.e. 15:1 methanol to oil molar ratio in 4 h compared to ZnO doped on activated dolomite (ZD) and AD. The catalytic activities of these catalysts were found to be depending on the basicity as well as the surface area of the catalyst used.

**Keyword:** Biodiesel; Transesterification; Palm oil; Heterogeneous catalyst; Dolomite; Tin oxide; Zinc oxide