

Removal of free fatty acid using ion exchange resin

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Utilization of the esterification pretreatment would be facilitated by the use of hetero-geneous esterification catalysts. We'll discuss results of esterification of free fatty acid(FFA) catalyzed by commercially available hetero-geneous (e.g. Amberlyst) catalysts. Removal of FFA from methanol and vegetable oil was studied by using an ion exchange resin, Amberlyst 15(A15) in the H⁺ form. Experiments were carried out in a stirred batch reactor under atmospheric pressure.

The effects of catalyst type, reaction temperature, reaction time, oil/MeOH ratio, catalyst quantity were investigated. Both of catalyst concentration and agitation speed could be neglected in this system. When it follows in experiment, we saw that the efficiency of FFA removal is good by elevating reaction temperature and reaction time. But we saw the different appearance according to changing the oil/MeOH ratio. And we could grasp several tendencies with other multi branch variables. So we could find the optimal condition which removes FFA.

The experimental results agreed well with the gained optimal condition.