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The catalysis oil drop acid process, study of macroporous cation exchange resin of solid acid

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Solid acid catalyst of macroporous cation exchange resin with sulfonic group - SO_3H as the functional groups, has the characteristics of large specific surface area and more active sites, but it has unstable physical structure and easily losses activity after absorbing water. In order to solve the problem of deactivation by the absorption of water during biodiesel preparation, the synchronization dewater way is done by pumping methanol continuously from the bottom of reactor and is adopted in the deacidification experiment of cooking oil with the acid value of 150 mgKOH/g. The reaction was proceeded in a 1L glass reacor with the reaction conditions of atmospheric pressure, 110°C, 10% catalyst quality account for the total oil, 2.500 ml/min flow of methanol. Under the reaction temperature of 110°C, the generated water during deacidification reaction was brought out by reactor by the vapor of methanol, which avoids the poisoning effect of water to catalyst. The experiments result showed that cooking oil acid value could be dropped to 0.21 mgKOH/g. By the adding of catalyst for the catalyst loss, the acid value can be controlled under 2.00 mg KOH/g after each reaction, the catalyst can be reused for 81 times.

Biography

Zhibing Li has completed his Master's in Environmental Engineering in 2002 from South China University and worked for Biomass Institute of Energy Conversion, Chinese Academy of Sciences as Senior Engineer. He is engaged in Biodiesel Technology Research. He has published more than 5 papers in reputed journals and has been serving as a reviewer for some journals.

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