

Statistical optimization for transesterification of soybean oil in supercritical methanol

석태광, 신희용, 배성열*
한양대학교
(bae5272@hanyang.ac.kr*)

Biodiesel production via transesterification of soybean oil in supercritical methanol was carried out without any catalysts. Response surface methodology (RSM) was used to evaluate the relationship between contents of fatty acid methyl esters (FAMEs) and reaction parameters such as reaction temperature, reaction pressure, reaction time, the molar ratio of methanol to oil and agitation speed. Central composite design was employed to fit the available response data to a second order polynomial RS models. The optimum condition maximizing the methyl ester contents in biodiesel was investigated. Results showed that the optimum reaction condition was 323°C, 27.5MPa, 32min, 86.2:1, and 500rpm, respectively. The response value for this condition was 87% of the methyl ester contents in biodiesel.