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DEACIDIFICATION AND ETHYL BIODIESEL PRODUCTION FROM ACID SOYBEAN OIL USING A STRONG ANION EXCHANGE RESIN

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ABSTRACT

The objective of this work was to investigate simultaneously the deacidification and the ethyl biodiesel production from soybean oil using the Amberlyst A26 OH anion exchange resin. The behavior of the process was investigated as a function of resin loading, ethanol concentration and initial free fatty acids (FFAs) content. To obtain the acidified oil, degummed soybean oil and commercial linoleic acid were mixed. The Langmuir model was able to better describe the FFAs adsorption isotherms in comparison to the Freundlich equation. A high removal of FFAs with high deacidification rate could be obtained using lower initial ratios of FFAs per mass of dry resin, being this the more favorable condition for oil deacidification. Ester formation showed to be affected by the resin loading, initial FFA content and ethanol concentration in the medium. The adsorption of FFAs seemed to deactivate the catalytic

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