

## عنوان مقاله:

Physical properties correlations in biodiesel production from used soybean oil based on reaction time and temperature

## محل انتشار:

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## خلاصه مقاله:

Biodiesel as a pure, non-toxic, biodegradable and renewable alternative for fossil diesel fuel has attracted much attention in recent decade. Thus, demands for researches in this field are growing up every day. In order to simplify the mentioned research a new method was introduced to determine progress and end point in transesterification of used soybean oil to biodiesel (methyl esters) by the use of physical properties variation during reaction. This method can be replaced by expensive and time-consuming, quantitative analysis stage. In the present work first transesterification of used soybean oil at 55,50 and 65 °C with MeOH to oil molar ratio of 12:1 and 6.5745 wt.% of sulfuric acid as catalyst (the optimum conditions) under vigorous mixing at different durations was carried out to determine how conversion and physical properties change. It was concluded that this reaction proceeded over 75% in 10 hours and shows this type of reaction is slow. In the second step, to verify physical properties in three temperature 55, 60 and 65°C , five samples for each temperature in condition that mentioned before was taken at 2,4,6,8 and 10 hours and used soybean oil was used as feed. Finally appropriate functions were fitted on the extracted data and were evaluated. Refractive index and specific gravity were selected as good physical properties to predict reaction

## کلمات کلیدی:

Biodiesel, Acid Catalyst, Physical Property, Used soybean oil

## لینک ثابت مقاله در پایگاه سیویلیکا:

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