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Thermally produced nano catalyst for biodiesel production : A Review

(Article)

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Abstract

View references (42)

Catalyst is a substance that enables chemical reaction in faster rate. In biodiesel production, catalyst plays as an important role as it can increase the rate of the reaction. The type of catalyst that usually can be found are homogeneous and heterogeneous catalyst. However, homogenous catalyst is difficult to separate with the product (biodiesel) at the end of the reaction compared to heterogeneous catalyst. This will result in production of high waste water and creates issue in regeneration of the catalyst. In order to overcome the issue, many researchers have studied about heterogeneous catalyst and the use this type of catalyst in production of biodiesel. The heterogeneous catalyst can be developed from natural resources such as animal bone, waste and natural rock which is a type of alkali earth oxides. A way to improve the catalytic activity of the catalyst used is increase its surface area by preparing it in nano-sized of catalyst. Nano-catalyst has a high catalytic efficiency, large surface area, high resistance to saponification and good rigidity. However, the thermal condition during decomposition of catalyst could influence the activity of the catalyst during the reaction. Therefore, the reaction rate and the catalytic activity of the catalyst during transesterification reaction can be affected by the type of catalyst and the thermal condition involved during the preparation of the catalyst. © 2018 Penerbit Akademia Baru.

Author keywords

Biodiesel | Calcination | Calcium oxide | Heterogeneous catalyst | Nano-catalyst | Thermal decomposition

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