

2<sup>nd</sup> International Congress and Expo on**Biofuels & Bioenergy**

August 29-31, 2016 Sao Paulo, Brazil

**Performance of CaO from different sources as a catalyst precursor in soybean oil transesterification: Kinetics and leaching evaluation****Daniel Bastos de Rezende**

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Calcium oxide (CaO) has been studied as one of the most efficient heterogeneous catalysts for biodiesel production, but there are few studies about the effects of CaO morphology on calcium leaching and catalyst activity. In the present work, soybean transesterification was performed using CaO from different sources (commercial, synthesized from chicken eggshell and produced by a carbothermal route) to develop a comparative study. The <sup>1</sup>H NMR results showed that the soybean oil transesterification catalyzed with CaO, derived from all sources, yielded greater than 93% (m/m) methyl esters, 4 h reflux, a molar methanol: Oil ratio of 12:1 and 3% catalyst. The amount of leached calcium was 219 ppm for the biodiesel synthesized with CaO derived from commercial sources, 194 ppm for CaO from eggshell and 93 ppm for CaO s from a carbothermal route. As consequence of higher Ca leaching content, CaO co precursor presented higher rate constant. This can be explained by the prompt reaction of Ca leaching and glycerol, yielding calcium diglyceroxide, which is the main catalytic specimen. The study showed that the homogeneous contribution from the leached species can be considered negligible. The heterogeneous catalysis was confirmed for all different CaO sources studied.

**Biography**

Daniel Bastos Rezende is Chemical Engineer, with master degree and Ph.D in biofuels area, from Federal University of Minas Gerais. He worked for one year in CENIBRA, pulp and paper segment industry, as process engineer. He also has eight years of experience in FIAT-CHRYSLER (FCA), where he has worked for six years in the laboratory of fuels and lubricants and for two years as innovation projects manager, establishing an extensive network with suppliers and partners. In addition to industry experience, he has considerable experience as teacher, including two years at the Federal University of Minas Gerais, in disciplines of Engineering. At this moment, he is the Visiting Researcher of PRH-46 (Human Resources Program in Biofuels Chemistry) at UFMG.

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