

عنوان مقاله:

Investigating the Correlation Between Fatty Acid Profiles and Biodiesel Performance

محل انتشار:

پانزدهمین کنگره ملی و اولین کنگره بین المللی مهندسی مکانیک بیوسیستم و مکانیزاسیون کشاورزی (سال: 1402)

تعداد صفحات اصل مقاله: 20

نویسندگان:

,Marziyeh hoseinpour - *Shahrud University of Technology*

Abbas Rohani - *Ferdowsi University of Mashhad*

خلاصه مقاله:

The production of biodiesel from hybrid oils or mixing two or more biodiesel (binary or ternary blending) is one of technique to overcome some conflicting challenges in biodiesel industry. At the same time, the prominent factor in biodiesel properties are its chemical features. Therefore, investigation the correlation between main biodiesel properties and fatty acid compositions would help to find an appropriate mixed oils or biodiesel blending based on its property, for example a biofuel with lower viscosity or higher could point. The present study aimed to review the correlation between γ of main biodiesel properties and $\gamma\gamma$ of main fatty acids. For this, more than 100 data, different types of biodiesel, is collected from pervious study to make a reliable date set, then the Pearson correlation coefficient is used to evaluate the relation between different type of fatty acids and biodiesel properties. The obtained result shows that there was a negative correlation between density, viscosity, heating value and could point and short chain saturated esters, while cetane number and flash point positively correlated with these types of esters. In addition, although heating value, flash point and density have a positive correlation with mono unsaturated esters, viscosity and cold point negatively correlated with poly unsaturated esters. Furthermore, there was no meaningful correlation between biodiesel properties and some of fatty acid esters in its chemical structures. These results would be practical when it comes to mixing oils or modeling biodiesel properties via machine learning methods

کلمات کلیدی:

Biodiesel properties - Fatty acid composition - Pearson correlation – Mixing - Modeling

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1813416>

