

Studies on the Physicochemical Properties of Biolubricants Obtained from Vegetable Oils and Their Oxidative Stability

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Abstract : Increasing constraints of environmental regulation around the world have led to higher demand for biodegradable products. Vegetable oils present some properties that may favor their use as biolubricants; however, there are others, such as resistance to oxidation and pour point, which affect possible commercial applications. In this study, the physicochemical properties of biolubricants synthesized from different vegetable oils were evaluated and compared with petroleum-based lubricant and pure vegetable oil. Chemical modifications applied to the original vegetable oil improved their oxidative stability and pour point significantly. The addition of commercial antioxidants to the bio-based lubricants was evaluated, yielding values of oxidative stability close to those of mineral basestock oil.

Keywords : biolubricant, vegetable oil, oxidative stability, pour point, antioxidants

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