

Rheology of new lubricating greases made from renewable materials

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Abstract. Lubricating greases from waste frying vegetables oils with natural fibers additives could be the answer to the sustainable production of greases. Also, their biodegradability makes them more acceptable for the environment, having in view increasingly strict regulations in domain. In this experimental work, twenty lubricant formulae were created from waste sunflower oil and waste palm oil with calcium or lithium stearate as thickener and cellulose or lignin additives. All were rheologically tested and characterized as Bingham fluid with good consistency and plasticity. The penetration tests confirmed the good consistency, categorizing these products from normal to firm, very firm and hard lubricant greases comparable to those conventionally obtained from mineral oils.

Keywords: lubricating greases; renewable materials; rheological properties; thickener.

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