

Readily biodegradable lubricants

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Abstract: As a paradox, petroleum a natural and benign material may be released to the environment as a potentially harmful material. At present biodegradable lubricants are the technical and environmental alternatives for conventional lubricants. Concern for the environmental aspects has led to reconsider the using of vegetable oils and readily biodegradable synthetic fluids as raw materials for all types of lubricants: lubricating oils, greases, metal-working fluids, wire rope lubricants. Lubricating greases contain several components of different types, which may be conveniently classified into three groups: the fluid, the thickener and the additives. As well as the base materials, the additives for biodegradable greases should be used in environmentally friendly greases. The paper presents comparative data concerning the tribological and physico-chemical properties of the biodegradable greases formulated with some vegetable oils, like rape-seed oil, castor oil, soybean oil as such, or mixtures and synthetic esters. The improvement of the load-carrying properties of biodegradable greases and the antioxidant effect of some suitable additives are studied.

Keywords: grease, environment, lubricating fluids, vegetable oils, synthetic esters, additives
