

Fominov E.V., Lavrenova T.V., Kurochkina V.A., Druzhinina D.M.

Prospects for Using the Environmentally Acceptable Lubricants in Agricultural Machinery Friction Assemblies

Abstract: The paper studies the possibility of using the environmentally acceptable lubricants based on the combination of vegetable oils in the agricultural machinery friction assemblies. An experimental assessment of the processes of boundary lubrication and electro-hydrodynamic types of lubrication in the vegetable oil media was carried out. The parameters of intensity of boundary lubricant layer thickness increase and destruction, as well as the parameters of its structure, which are considered as the lubricating properties for each type of oil, have been found. The types of oils attributed with the greatest shielding effect ensuring maximum protection against the wear of the surfaces of triboelements made of structural steels have been identified. Such oils can serve as the forward-looking bases for adding the enhancing additives and creating the plant-based lubricants.