

EFFICIENCY TESTS OF A TRANSFER GEARBOX: BIODEGRADABLE NON-TOXIC ESTER VS. MINERAL OIL

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ABSTRACT

Two industrial gear oils, a biodegradable non-toxic ester and a reference paraffinic mineral oil, were compared in terms of gearbox wear and efficiency. Transfer gearbox efficiency tests were performed in a back-to-back gearbox test rig, for wide range of the operating conditions. Input and output power, as well as, oil and gearbox temperatures were recorded throughout the tests. Gearbox efficiency was determined and its dependence on input torque, speed and power was analyzed. Lubricant samples, collected during and at the end of the tests, were analyzed by Direct Reading Ferrography (DR3). The wear particles concentration (CPUC) and wear particles severity (ISUC) were determined in order to estimate the wear of the transfer gearbox.

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