Application of Discriminant Analysis in Monitoring the Wear Particles in the Engine Oil

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Multi-dimensional analysis does not include the conventional statistical techniques used in the operating reliability of the machine, where it is much more appropriate than the one-dimensional analytical method. The article deals with monitoring the wear particles in the tractor Zetor 8641 Forterra to pherograph creating pherographical footprint, in which the engine is in critical condition. The experimental part focuses on the trend curve fitting wear evaluated from individual particle analysis tests conducted to permit the monitoring of internal combustion engines (especially diesel). Theoretical assumptions about the relationships between selected parameters of motor oils and knowledge of individual material components allow to reliably determine the accrued failure due to the increase of wear metals in the oil and signal the increased engine wear in a timely manner and to draw attention to the approaching critical condition of the machine. By applying multi-dimensional statistical data in the measurement of wear metals enabled uncovering the links and structure of the tribodiagnostic parameters and sampling the oil, which also helps to determine deeper conclusions depending on the material identification impurities.

Keywords: Discriminant Analysis, Engine Oil, Wear Particles, Tribotechnical Diagnosis, Trendy Wear

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