



Published Researches



Title	Experimental Comparison of the Effect of Using Synthetic, Semi-synthetic, and Mineral Engine Oil on Gasoline Engine Parts Wear
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Link	https://doi.org/10.1155/2024/5997292
Abstract	<p>Abstract</p> <p>This paper includes the laboratory and experimental methodology used to compare the effect of using mineral, semi-synthetic, and synthetic engine oil on the parts wear of a four-stroke gasoline internal composition engine (ICE). Three test platforms included three engines with identical, technical, and design specifications. They were operated under the same investment, ambient, and climatic conditions. The first engine was equipped with synthetic oil, the second with semi-synthetic oil, and the third with mineral engine oil. All of them had (SAE10W40 API: SL/CF). All test platforms were operated through three stages with variable loads for up to 1,500 operating hours (hr). Oil drain intervals (ODI) were every 100 operating hours. Used oil samples were taken to analyze the physical and chemical characteristics of viscosity, total base number TBN, flash point, metals wear Iron (Fe), copper (Cu), chromium (Cr), and wear index (WI) to investigate the effect of all oils on the wear of engine parts and by comparing the changes in wear. The used oil analysis (UOA) results were drawn that showed the superiority of the use of synthetic oil over semi-synthetic and mineral. It prolonged the technical engine's lifetime.</p>