An experimental study of the effect of octane number higher than engine requirement on the engine performance and emissions

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Abstract

In this study, the effect of using higher-octane gasoline than that of engine requirement on the performance and exhaust emissions was experimentally studied. The test engine chosen has a fuel system with carburettor because 60% of the vehicles in Turkey are equipped with the carburettor. The engine required 91-RON (Research Octane Number) gasoline was tested using 95-RON and 91-RON. Results show that using octane ratings higher than the requirement of an engine not only decreases engine performance but also increases exhaust emissions.
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Keywords: Spark ignition engine; Gasoline; Research octane number; Specific fuel consumption; Exhaust emissions

Abbreviations: RON, research octane number; WOT, wide open throttle; CO, carbon monoxide; HC, hydrocarbons; ppm, particulate per million; rpm, revolution per minute; bsfc, specific fuel consumption, g/kWh.

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