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PERFORMANCE ANALYSIS AND WEAR OF I.C ENGINE VALVE AND SEAT INSERTS USING JATROPHA METHYL ESTERS

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Abstract

The present paper deals with the engine performance and valve seat wear. It is important to note that valve seat wear is one of the most important factors which affect the engine performance. Because of higher demands on performance and the increasing use of biodiesels, engine valves are challenged with the greater wear problems than in the past. The valve seat face is subjected to impact load on closing followed by much higher load imposed during combustion in the cylinder forcing the valve into the seat insert. It is also important to note that the valve failure may occur because of valve recession, which is caused by loss of material from the seat of the valve. It occurs gradually over a large number of cycles. The present study deals with the experimentation on diesel and jatropha and its blends. The experimentation results have been used to determine the wear of valves based on abrasion and impact model. From the analysis it is observed that the valve recession increases with increase in number of cycles at defined pressure.It is also noticed that the valve recession increases with increase in engine load.

Keywords: Valve recession, jatropha methyl esters (JAOME).