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2004 Mack MD11柴油机燃用氢-柴油混合燃料的排放特性

Emission performances of 2004 Mack MD11 engine fueled with hydrogen-diesel blend

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中文摘要:

为了降低柴油机的排放,氢作为柴油机燃料的研究正在引起研究者的关注。该文对2004 Mack MD11柴油机燃用不同比例(最高氢气比例达7%)的氢气与柴油组成的混合燃料的CO、CO₂、HC、排放特性进行了研究。结果表明:在各种负荷下,氢气和柴油的混合燃料有助于降低CO、CO₂和HC的比排放。随氢气添加量增加(或添加超过一定量以后),CO、CO₂和HC各自排放量随着负荷降低的规律不尽相同,在低负荷下排放量的降低更为显著一些。如在10%负荷下,CO排放量减少50%以上;CO₂量减少60%以上;HC排放量减少40%以上。

英文摘要:

In order to reduce emissions of diesel engines, researchers have paid attention to the research on hydrogen as fuel of diesel engines in recent years. Investigation into the effect of the addition of hydrogen at different proportion (the highest proportion of the hydrogen is 7%) into 2004 Mack MD11 diesel engine on the emissions of CO, CO₂ and HC were carried out. Results showed that corresponding to pure diesel operation, the addition of hydrogen into the engine helped to reduce the emissions of CO, CO₂ and HC in various load. Moreover, as the increase of amount of hydrogen (or the more H₂ added), law of the emission change for them was different with the change of load. Furthermore, the emissions of CO, CO₂ and HC had a more significant reduction at low load. For example, for operation at 10% load, CO emission reduced more than 50%, CO₂ emissions reduced more than 60%, and HC emission reduced more than 40%.

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