

EGR与富氢进气对柴油机性能和排放的影响 Effect of EGR and Intake Hydrogen Enrichment on Performance and Emissions of Automotive Diesel Engine

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关键词: 柴油机 废气再循环 富氢进气 排放

摘要: 试验研究了利用EGR加富氢进气改善ZS195型柴油机性能和排放的可行性, 在标定转速下试验研究了不同EGR率、掺氢率对ZS195型柴油机工作过程、排放和经济特性的影响。研究表明: 在高负荷工况, 当EGR率一定时, 随着掺氢率的增加, 缸内峰值压力和压力升高率峰值增加。EGR加富氢进气可以降低HC、CO排放量和烟度, 但NO_x排放量有所增加。ZS195型柴油机采用EGR技术后, 富氢进气会提高缸内混合气的燃烧速度, 改善缸内燃烧质量, 发动机的热效率有所增加。This paper presented the feasibility of improving engine performance and pollutant emissions of a ZS195 diesel engine by EGR and intake hydrogen enrichment. At rated speed, the effects of EGR rate and hydrogen addition on the engine performance, pollutant emissions and economic characteristics were experimentally investigated. The results showed that when EGR rate is constant, peak pressure and maximum rate of pressure rise increase with hydrogen addition. The EGR and intake hydrogen enrichment can reduce HC, CO and smoke level, but the NO_x emission increases. The combustion speed and thermal efficiency increase with the hydrogen addition when EGR technique is adopted.

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