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乙醇-丁醇-柴油混合燃料的车辆排放性和经济性

Vehicle emissions and fuel consumption of diesel vehicles fueled with ethanol-butanol-diesel blends

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中文关键词: [柴油车](#), [燃料消耗量](#), [尾气排放](#), [乙醇-丁醇-柴油](#)

英文关键词: [diesel engine](#) [fuel consumption](#) [exhaust gases](#) [ethanol-butanol-diesel blends](#)

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中文摘要:

为了研究乙醇-丁醇-柴油混合燃料的车辆排放性和经济性,该文对分别使用乙醇-丁醇-柴油混合燃料和柴油的在用柴油轿车的排放性能和燃油经济性,以及在用柴油客车的自由加速排气烟度排放进行了对比试验。研究表明:相对于柴油,在用柴油轿车使用E10(体积比,乙醇10%、丁醇4%、柴油86%)混合燃料的NOX排放减少10.42%,HC+NOX排放减少27.43%,微粒(PM)排放减少2.13%,90和120 km/h等速行驶燃料消耗量分别减少7.66%和3.71%;然而CO排放增加31.43%,工况循环综合燃料消耗量增加4.48%。此外,在用柴油客车使用E10混合燃料的自由加速排气烟度排放减少31.11%。该研究结果对于完善乙醇柴油混合燃料的车辆排放性和经济性具有实用价值。

英文摘要:

Exhaust emissions and fuel consumption of a diesel passenger car and a diesel minibus on road were measured to investigate the vehicle emissions and fuel consumption with ethanol-butanol-diesel blends. The experimental data from the car fueled with an E10 blend that contains 10% ethanol and 4% butanol by volume, was compared with those from the fossil diesel, it resulted in decreases of 10.42% in NOX emissions, 27.43% in HC+NOX emissions and 2.13% in PM emissions. The fuel consumption also declined by 7.66% and 3.71% under the car in constant velocity conditions of 90 and 120 km/h, respectively. Nevertheless, the results showed increases of 31.43% in CO emissions and 4.48% in fuel consumption for the car in terms of New European Driving Cycle or NEDC. Yet the E10 mixture in the minibus reduced the emissions of free acceleration exhaust smoke by 31.11%. This research demonstrates the practical applications of ethanol-butanol- diesel blends for improving vehicle emissions and fuel consumption.

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