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## 大豆油甲酯—柴油混合燃料特性研究

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摘要: 近年来, 生物柴油作为一种无毒的、可生物降解的、可再生的柴油机代用燃料倍受关注。为优化生物柴油的应用, 对比分析了大豆油甲酯生物柴油与柴油混合液的低温流动性、雾化和蒸发性、安定性、腐蚀性、清洁性和互溶性。结果表明: 与柴油相比, B5、B10、B15、B20、B25和B30的凝点和冷滤点保持不变; 闪点、20℃运动粘度、40℃运动粘度、密度和50%馏出温度分别平均增加26.8%、7.2%、10.8%、1.3%和12.6%, 而90%和95%馏出温度基本不变; 胶质和残碳分别平均增加62.3%和6.5%; 硫含量平均降低15.7%, 但酸度平均升高4.1%; 灰分平均增加22.7%, 但机械杂质平均降低13.7%。经分析, 大豆油甲酯生物柴油与柴油混合液基本符合国家标准GB252-2000对轻柴油的要求。

Abstract: Biodiesel is receiving attention as an alternative, non-toxic, biodegradable and renewable diesel fuel recently. In order to optimize the application of biodiesel, the low temperature fluidity, pulverization, evaporation, invariability, erosion capability, cleanliness and mutual solubility of soybean oil methyl ester with different blend ratios were compared and analyzed. Experiment result showed that compared with diesel fuel, B5, B10, B15, B20, B25, and B30 had no change for solidifying point and cold filter plugging point. Flash point, kinematic viscosity at 20°C and 40°C, density and distillation temperature at 50% increased averagely by 26.8%, 7.2% and 10.8%, 1.3% and 12.6%, respectively, but distillation temperature was not obviously variable at 90% and 95%. Gelatine and carbon residue increased averagely by 62.3% and 6.5%, respectively. Sulphur content reduced averagely by 15.7%, but acidity increased averagely by 4.1%. Ash content increases averagely by 22.7%, but mechanical impurity reduced averagely by 13.7%. As conclusion soybean-oil-methyl-ester-diesel blends conform to the standard GB252-2000 of China.

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