

عنوان مقاله:

Evaluation of Diesel Engine Performance and Emission Using Blends of Diesel-Biodiesel-Polymer

محل انتشار:

هفتمین همایش بین المللی موتور های درونسوز (سال: 1390)

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خلاصه مقاله:

Though biodiesel as a renewable fuel results in lower emission and higher lubricity attributes in respect to diesel fuel, it has few drawbacks including high price due to costly raw materials, lower performance and cold flow properties. On the other side, using blends of fuels can obviate such disadvantages. Expanded polystyrene (EPS) is a popular polymer for packaging systems due to its acceptable thermal insulation and high impact resistance. EPS is also an ideal material for energy recovery as it holds a high energy value. It is well proven that 1 kg of EPS is equivalent to 1.3 liters of liquid fuel. The primary objective in this research was to present a suitable approach for recovering EPS wastes together with improving biodiesel quality. As the first step, it was tried to yield maximum EPS value dissolution in biodiesel and achieve a homogenous fuel composition. Furthermore, several B5 (biodiesel:diesel=5:95) blends of diesel fuel with various percentages of EPS were tested in diesel engine. Diesel engine tests were performed in 8 mode test of ECE-R96 standard. It was found that at the maximum torque and speed, with increasing in EPS content bsfc, CO₂ and NO_x contents were reduced, while engine power and CO value were remained approximately constant.

کلمات کلیدی:

Diesel Engine, Performance, Emission, Expanded Polystyrene, Biodiesel

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