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Title:Fuel property determination of biodiesel-diesel blends by terahertz spectrum

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Abstract:The frequency-dependent absorption characteristics of biodiesel and its blends with conventional diesel fuel have been researched in the spectral range of 0.2-1.5 THz by the terahertz time-domain spectroscopy (THz-TDS). The absorption coefficient presented a regular increasing with biodiesel content. A nonlinear multivariate model that correlating cetane number and solidifying point of bio-diesel blends with absorption coefficient has been established, making the quantitative analysis of fuel properties simple. The results made the cetane number and solidifying point prediction possible by THz-TDS technology and indicated a bright future in practical application. © Springer Science+Business Media, LLC 2012.

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