

Development of fast check test kit for biodiesel quality monitoring

Abstract

Determination of fatty acid methyl esters (FAME) content in petroleum diesel blends and monitoring of unreacted glycerides in biodiesel after transesterification are important aspect of blending process and production as well as quality control of distribution operations. In this study, fast check analysis method with special measuring device and chemical solvent mixture were developed to provide on-site analysis check for biodiesel quality monitoring. Biodiesel Test Kit have shown comparable result with ASTM D7371 with correlation coefficient ($R^2 > 0.99$) for biodiesel-diesel blends B5, B10 and B20. Result has indicated biodiesel sample from various feedstock such as Palm, Jatropha and Soybean are not affected the accuracy of biodiesel test kit. The use of Triglycerides Test Kit in determination of triglyceride content in biodiesel from various feedstock have shown good correlation coefficient ($R^2 > 0.99$) for triglycerides 3, 4 and 5%(v/v). Again, biodiesel derived from Palm, Jatropha and Soybean do not affect the accuracy of triglycerides test kit. The developed methods are providing fast, simple and affordable on-site fast check analysis in measuring FAME content in diesel and triglycerides content in final FAME product economically especially in rural area.