

DETERMINATION OF SULPHUR CONTENT IN BIODIESEL AND DIESEL FUEL USING THE ULTRAVIOLET FLOURESCENCE METHOD

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A sample is placed in a sample boat. The boat is then inserted into a high temperature combustion tube where the sulphur is oxidized to sulphur dioxide (SO_2) in an oxygen-rich atmosphere. The sample combustion gases are next exposed to ultraviolet (UV) light. The SO_2 absorbs the energy from the UV light and is converted to excited sulphur dioxide (SO_2^*). The fluorescence emitted from the excited SO_2^* as it returns to a stable state (SO_2) is detected by a photomultiplier tube of a total sulphur analyser, and the resulting signal is a measure of the sulphur contained in the sample.



Figure 1. Total sulphur analyser.

Amount of sample required: 1 ml

Cost of analysis: RM 500 per sample*

Note: * As at June 2010; subject to change.

REFERENCES

EUROPEAN COMMITTEE FOR STANDARDIZATION (2004). *EN ISO 20846:2004 Petroleum Products – Determination of Sulphur Content of Automotive Fuels – Ultraviolet Fluorescence Method.*

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) (2008). *ASTM D5453-08b Standard Test Method for Determination of Total Sulphur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence.*



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