

Emcee Electronics, Inc.

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WATER SEPARATION CHARACTERISTIC, FREE WATER AND PARTICULATE TESTING

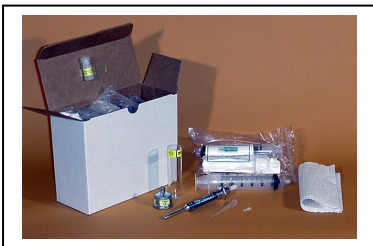
(ASTM Standard Test Methods D 3948 & D 4860)

For quality control purposes, water separation characteristics of fuels are rated to determine the amount of surface active materials (surfactants) present. Surfactants degrade the performance of filter separators used to remove water from the fuel. The presence of water can impair engine performance and initiate microbiological growth, which can cause corrosion in tanks and filter plugging in fuel lines. Also for quality control purposes, fuels are subjected to "Clear & Bright" tests to determine the amount of free water and particulate matter in mid-distillates.

Description of Instrument & Tests



**Model 1140
Micro-Separometer**



**"Six Pack"
Test Expendables**

A box containing 6 Test Kits, commonly known as a "Six Pack" are shown above. Expendables for a single test are vacuum packed in each Test Kit. A container of distilled water is also included in each Six Pack.

The Model 1140 Micro-Separometer is an electro-mechanical instrument used to perform two discrete tests. ASTM Standard Test Method D 3948 is used to rate the water separation characteristics and D 4860 detects and numerically rates free water and particulate contamination.

Water Separation Characteristic

Test Method D 3948 employs the use of a turbidimeter, a mechanical mixer, and a disposable filter. A portion of the sample, in a clear glass vial, is used to set the meter to read 100. The sample in the vial is discarded and the vial is retained.

Another portion of the sample in a plastic syringe is used to create a water/fuel emulsion using the mixer. The emulsion is passed through the filter at a programmed rate and a portion is collected in the retained vial. The vial is replaced in the turbidimeter and the water separation characteristic of the fuel is rated.

The value obtained is compared to the unprocessed sample that was used to set the meter to 100. The higher the rating, 100 being the maximum, the less surfactant present.

Clear & Bright

Test Method D 4860 passes a portion of the sample through a filter medium, which is collected in a clear glass, vial. The vial is placed in the turbidimeter and the meter is adjusted to 100. The processed fuel is discarded and a portion of the unprocessed fuel is placed in the vial, which is re-inserted in the turbidimeter. Higher ratings, 100 is maximum, indicate that there is less free water and particulate present.

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