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Diesel engines — Fuel filters — Method for evaluating fuel/water separation efficiency

Moteurs diesel — Filtres à carburant — Méthode d'évaluation de l'efficacité de séparation carburant-eau

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Foreword

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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 34, *Vehicle propulsion, powertrain, and powertrain fluids*.

This document cancels and replaces the first edition ISO/TS 16332:2006 which has been technically revised. The main changes compared to the previous edition are as follows:

— test fuel definition;

— change of IFT measurement standard and interface age;

— droplet size distribution;

— test duration;

— additional preconditioning cycle; and

— validation of test procedure by conduction of two round robin tests (see Annex G).

Introduction

Modern fuel injection systems, installed in passenger cars, as well as in heavy duty or off-road applications, require high and stable separation efficiencies for all insoluble contaminants in the fuel to ensure a prolonged life. Beside solid contamination, undissolved water, in finely or coarsely emulsified form, can also reduce the lifetime of injection systems. Suitable fuel/water separators, having a high level water separation efficiency, are an absolute necessity for system longevity.

Factors found to affect the separation efficiency of undissolved water in the field are mainly due to the fuel quality, which can differ widely in different regions of the world and which can also differ when biogenic components are added to the fuel. Additionally the separation efficiency is strongly influenced by fuel composition.

Separation efficiency tests can be applied mainly for two purposes:

— To evaluate the field performance of a fuel/water separator

  To evaluate the performance of a fuel/water separator close to field conditions, the usage of commercially, untreated fuel as test fluid is necessary.

— To compare fuel/water separators under repeatable test conditions

  For a fuel/water separator comparison in the laboratory, fuel conditioning is necessary to achieve constant and repeatable test conditions. Water separation efficiency results obtained with treated fuel can be significantly different from those with commercially available, untreated fuel.

Tests performed with new fuel/water separators can lead to considerably higher water separation efficiencies.

NOTE Ageing of the fuel/water separator due to operational conditions can strongly affect the water separation function of a fuel/water separator. To test a fuel/water separator in an “end of life” state, it can be aged in advance. It is proposed to do this by a standardized ageing procedure, to get comparable “end of life” states. However, it is not a part of this document nor any other ISO standard. This procedure may be explored in future.

