TECHNICAL REPORT

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Automotive fuels - Diesel fuel market issues - Abrasive particles investigation report

Carburants pour automobiles - Problèmes concernant le carburant diesel - Rapport d'enquête sur les particules abrasives

Kraftstoffe - Marktprobleme bei Dieselkraftstoff - Untersuchungsbericht zu abrasiven Partikeln

This Technical Report was approved by CEN on 2 November 2020. It has been drawn up by the Technical Committee CEN/TC 19.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (CEN/TR 17548:2020) has been prepared by Technical Committee CEN/TC 19 “Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin”, the secretariat of which is held by NEN.

This document primarily addresses quality issues that can be associated with abrasive particles in diesel fuel that can cause wear damage to high pressure common rail fuel injection systems.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Introduction

At the CEN/TC 19/WG 24 meeting on 18 October, 2017 in Zurich, Switzerland there were technical presentations describing serious vehicle fuel injection system wear and damage problems in Northern Germany and the Southeast of the United Kingdom. A CEN task force was formed in January 2018 to investigate these abrasive wear issues in order to establish the root cause and make recommendations.

After a year of investigations of market fuels, refinery product streams and field issues, the task force produced a summary report detailing the findings of the fuel quality investigation and vehicle fuel injection system damage caused by this contamination with respect to the work on European (diesel fuel) standards. CEN/TC 19 requested to have this report published as a CEN/TR, parallel to implementing the advice and recommendations in standardization and the market.

1 Scope

This document describes the investigation into diesel vehicle common rail fuel injection system damage and excessive wear problems in a number of countries across Europe since 2014 carried out by CEN/TC 19/WG 24 Abrasive Particles Task Force.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 590:2013+A1:2017, *Automotive fuels - Diesel - Requirements and test methods*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

4 Symbols and abbreviations

For the purposes of this document, the following symbols and abbreviations apply.

ARA	Antwerp Rotterdam Area
CONCAWE	Conservation of Clean Air and Water in Europe
DFA	Downstream Fuels Association
DLC	Diamond Like Carbon
DMV	Diesel Motor Vehicle
DPF	Diesel Particulate Filter
EU	European Union
FAME	Fatty Acid Methyl Ester
FBT	Filter Blocking Tendency
FIE	Fuel Injection Equipment
HD	Heavy Duty
HDEP	Heavy Duty Engine Platform
ICP	Inductive Coupled Plasma
ICP- AES	Inductively coupled plasma-atomic emission spectrometry
ICP-MS	Inductively coupled plasma-mass spectrometry
IPTV	Incidents Per Thousand Vehicles
LD	Light Duty
MDEG	Medium Duty Engine Generation
M+H	Mann and Hummel