TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

# CEN/TR 15367-1

October 2014

ICS 75.160.20; 75.200; 03.100.50

Supersedes CEN/TR 15367-1:2007

English Version

# Petroleum products - Guidelines for good housekeeping - Part 1: Automotive diesel fuels

Produits pétroliers - Guide pour une bonne maîtrise de la qualité du produit - Partie 1: Carburants diesels pour automobiles (gazoles)

Mineralölerzeugnisse - Leitfaden für eine gute Systemwartung - Teil 1: Dieselkraftstoffe für Kraftfahrzeuge

This Technical Report was approved by CEN on 14 July 2014. It has been drawn up by the Technical Committee CEN/TC 19.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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# Foreword

This document (CEN/TR 15367-1:2014) 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.

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

This document supersedes CEN/TR 15367-1:2007. The update primarily addresses quality issues that can be associated with blends of diesel fuels and Fatty Acid Methyl Esters (FAME) and by low-level contaminants in diesel fuel that can be picked up in supply and distribution systems. These low level contaminants, such as sodium and other inorganic contaminants, have recently been implicated in the formation of internal diesel injector deposits (IDID).

CEN/TR 15367 consists of the following parts, under the general title *Petroleum products - Guidelines for good housekeeping*:

— *Part 1: Automotive diesel fuels*

— *Part 2: Automotive petrol fuels*

— *Part 3: Prevention of cross-contamination*

This part of this Technical Report describes the distribution of automotive fuels in general and diesel in specific detail. Part 2 was subsequently published to provide guidance on petrol distribution and specifically to address ethanol issues. Finally, Part 3 was published to provide additional guidance on preventing cross-contamination of fuel products in common supply and distribution systems. For further information on the relationship between and the history behind each of the parts, see the Introduction to this document.

# Introduction

During its meeting held in Cannes on June 27 2003, WG 24 “Specification for Automotive diesel” decided that a guidance document on good housekeeping could be instrumental in preventing potential motoring problems caused by contamination in the supply chain. This was endorsed by CEN/TC 19 resolution 24.5 and resulted in an effective publication of the first Technical Report in March 2006.

When a similar guideline for petrol was being drafted, it was decided to link these two. The best option was to publish them as separate parts of the same CEN document, which is achieved by revising the original CEN/TR 15367:2006 *Petroleum products — Automotive Diesel Fuels — Guide for good housekeeping* as part 1. Apart from some harmonization of wording no changes have been incorporated.

Two additional reports have now been published in this series regarding Automotive Petrol Fuels (Part 2) and the Prevention of Cross Contamination (Part 3).The work on these three documents has been carried out with support from CONCAWE and other stakeholders.

Automotive fuel specifications generally apply at the point of delivery to the customer. To ensure the quality at this point, the best practice is to make sure that the product meets specification when it is dispatched from the refinery and to have systems in place to ensure that it cannot go off-specification on its way to the customer. There will be more than one method or procedure to handle many of the potential contamination issues throughout the distribution chain, thus the advice in this document outlines principles to apply, but does not specify the precise detail of the methods to be adopted in all cases. Nevertheless, it is strongly recommended that all the procedures or measures to be applied along the distribution chain should be defined using a Total Quality Assurance methodology.

# 1 Scope

This Technical Report provides general guidance on diesel fuel housekeeping. It does not pre-empt national or local regulations but addresses the issues of contamination by water, sediment, inorganic contaminants, or microbial growth that may occur in the supply chain during manufacture, blending, storage and transportation. It does not address contamination by other fuel products nor does it address possible contamination by water or sediment that may occur on-board vehicles. An informative note on vehicle factors is presented in Annex A, however.

# 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 590, *Automotive fuels - Diesel - Requirements and test methods*

# 3 Supply chain definition

For the purposes of this document, the supply chain is considered to consist of the following four parts:

— refineries,

— terminals,

— filling stations (including retail and industrial customer sites), and

— transportation from refineries to terminals and from terminals to filling stations.

Information on additives beyond the supply chain is given in Annex B.

# 4 Potential sources of water and sediment in the supply chain

## 4.1 Water

Water may be picked up by the diesel fuel product at various stages of the supply chain and can be present either as free water or as an emulsion with small droplets of water suspended in fuel. The presence of FAME can increase fuel/water emulsions. The presence of free water can be a contributory cause of corrosion and biological contamination. Entry points for water include:

a) **dissolved or emulsified water** can occur during diesel fuel or FAME manufacturing. Dissolved or emulsified water can remain suspended in fuel or may separate and become free water further along the supply chain depending on the composition of the fuel and storage conditions. Cooling of the fuel blend can cause the dissolved water to coalesce and separate from the fuel;

b) **free water** can occur due to ingress or leaks as a result of, for example, heavy rainfall or through cracks in equipment;

c) **water vapour** (humid air) can enter storage tanks through air vents followed by cooling or condensation on tank walls or vehicle tanks;

Because it is virtually impossible to stop water from entering the supply chain, proper water management is essential. Tank inspections should routinely look for free water at the bottom of storage tanks. Free water, along with emulsified fuel, should be drained to ensure that the remaining fuel is clear and bright and free of extraneous material.