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Liquid petroleum products - Determination of the ignition quality of diesel fuels - BASF engine method

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NATIONAL FOREWORD

See Eesti standard EVS-EN 16906:2017 sisaldab Euroopa standardi EN 16906:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 16906:2017 consists of the English text of the European standard EN 16906:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.08.2017.	Date of Availability of the European standard is 23.08.2017.
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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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English Version

Liquid petroleum products - Determination of the ignition quality of diesel fuels - BASF engine method

Produits pétroliers liquides - Détermination de la qualité d'allumage des combustibles Diesel - Méthode avec le BASF-moteur

Flüssige Mineralölerzeugnisse - Bestimmung der Zündwilligkeit von Dieselkraftstoffen - Verfahren mit BASF-Prüfmotor

This European Standard was approved by CEN on 12 June 2017.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents

Page

European foreword

This document (EN 16906:2017) 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 European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

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.

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Introduction

The test method is based on DIN 51773 [1], which has been developed in DIN NA 062-06-43 AA “Engine testing of liquid fuels” and which is being used very successfully since more than 30 years. The described method is an alternative quantitative determination of the cetane number of middle distillate fuels intended for use in compression ignition engines. A correlation study between this method and EN ISO 5165:1998 [2] has been done and the results of this are incorporated in the precision report issued in 2014 [3].

The testing of pure FAME (which is in the scope of EN ISO 5165) has been excluded from the scope for the time being as there seem to be sample specific biases for such product. CEN will initiate appropriate causal studies.

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1 Scope

This European Standard specifies a test method for the determination of cetane numbers ("*CN*") in diesel fuel in the range from *CN* 45 to *CN* 63, using a standard single cylinder, four-stroke cycle, indirect injection engine. The cetane number provides a measure of the ignition characteristics of diesel fuels in compression ignition engines. The cetane number is determined at constant speed in a compression ignition test engine equipped with a swirl chamber.

This European Standard is applicable to distillate as well as paraffinic diesel fuels intended for use in diesel engines, including those containing fatty-acid methyl esters (FAME), ignition-improvers or other additives. The cetane number scale comprises a range from zero to 100, but typical testing is currently performed in the range from about 40 *CN* to about 75 *CN*.

This engine test procedure may be used for other fuels such as synthetics and vegetable oils. However, samples with fuel properties that interfere with the gravity-based pre-supply pressure to the fuel pump e.g. due to high viscosity can only be used to a limited extent. Precision data for such fuels are not available at this stage. Precision data for paraffinic diesel fuels are currently under development.

NOTE 1 For the purpose of this European Standard the expressions "%(m/m)" and "%(V/V)" are used to represent the mass faction and volume fraction respectively of a material.

NOTE 2 The test method is also suitable for determining cetane numbers outside the range of the scope, however, the precision statement only applies for fuels in the specified range.

WARNING — The use of this standard can involve hazardous materials, operations and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to take appropriate measures to ensure the safety and health of personnel prior to application of the standard, and fulfil statutory and regulatory requirements for this purpose.

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 ISO 3170, *Petroleum liquids - Manual sampling (ISO 3170)*

EN ISO 3171, *Petroleum liquids - Automatic pipeline sampling (ISO 3171)*

3 Terms and definitions

3.1
ignition quality
property of a fuel which causes a self-ignition under standard operating conditions in a diesel engine

3.2
ignition delay
ID
period of time between the start of fuel injection and the start of combustion expressed in degrees of crank angle rotation

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