

TNI	Automobilové palivá Benzín E20 Podstata požadovaných parametrov, príslušné medzné hodnoty a ich stanovenie	TNI CEN/TR 18238 65 6582
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Automotive fuels - E20 petrol - Background on the parameters required, their respective limits and justification

Táto technická normalizačná informácia obsahuje anglickú verziu CEN/TR 18238:2025.
This Technical standard information includes the English version of CEN/TR 18238:2025.

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English Version

Automotive fuels - E20 petrol - Background on the parameters required, their respective limits and justification

Carburants automobiles - Essence E20 - Historique des paramètres requis, leurs limites respectives et leur justification

Kraftstoffe - E20-Ottokraftstoffe - Hintergrund zu den erforderlichen Parametern, ihren jeweiligen Grenzwerten und ihrer Bestimmung

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CEN/TR 18238:2025 (E)

Contents	Page
European foreword	4
Introduction	5
1 Scope	7
2 Terms and definitions	7
3 Considerations for generally applicable requirements – CEN/TS 18227:2025, Table 1	7
3.1 Introduction	7
3.2 Research octane number (RON) and motor octane number (MON)	9
3.2.1 Octane and auto-ignition	9
3.2.2 Impact of RON	10
3.2.3 Impact of MON and fuel sensitivity	11
3.2.4 Determining minimum octane limits in the E20 CEN/TS 18227	12
3.3 Lead content	13
3.4 Density	13
3.5 Sulfur content	13
3.6 Manganese content	13
3.7 Oxidation stability	13
3.8 Existent gum content	13
3.9 Corrosion protection	13
3.9.1 Corrosion by water	13
3.9.2 Corrosion by sulfur	14
3.10 Water content	14
3.11 Appearance	15
3.12 Hydrocarbon type content and final boiling point (FBP)	15
3.13 Benzene content	16
3.14 Oxygen content	17
3.15 Oxygenates	17
4 Considerations for climate-related requirements - – CEN/TS 18227:2025, Table 2 .17	17
4.1 Volatility requirements table	17
4.2 Overview of volatility limit proposals	18
4.3 E70	19
4.4 E100	20
4.5 E150	22
4.6 Final Boiling Point (FBP)	22
4.7 Distillation residue	23
4.8 Vapour Lock Index (VLI)	23
5 Considerations about vapour pressure requirements	23
5.1 Vapour pressure limits	23
5.2 Vapour pressure waiver – volatility Class A	23
6 Test method validity	25
Annex A (informative) Overview discussion oxygenates in CEN/TC 19 WG21 (Specification for unleaded petrol)	26
A.1 Elastomer compatibility	26

A.2	Impact of oxygenates on octane and other performance metrics	28
A.2.1	General	28
A.2.2	Southwest Research Institute (SwRI) Studies	30
A.2.3	NREL Study	38
A.2.4	Volkswagen studies	40
A.3	Oxygenate effects on WTW GHG emissions.....	49
A.4	Studies of oxygenate effects on pollutant emissions	50
A.5	Oxygenate limits	52
A.5.1	Ethanol.....	52
A.5.2	C5+ ethers.....	56
A.5.3	Methanol.....	58
A.5.4	Other oxygenates.....	58
Annex B (informative)	Test method validity for E20 petrol.....	59
Bibliography	63

CEN/TR 18238:2025 (E)**European foreword**

This document (CEN/TR 18238:2025) 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.

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Introduction

Commonly available petrol blends include E5 (corresponding to blends oxygenated with C5+ fuel ethers (e.g. MTBE ((Methyl Tertiary Butyl Ether)), ETBE (Ethyl Tertiary Butyl Ether), TAME (Tertiary Amyl Methyl Ether)) up to 22 % (V/V) and/or up to 5 % (V/V) ethanol content) and E10 (corresponding to blends oxygenated with C5+ fuel ethers (e.g. MTBE, ETBE, TAME) up to 22 % (V/V) and/or up to 10 % (V/V) ethanol content). Both fuel specifications are defined in the European petrol standard EN 228 [1].

The Renewable Energy Directive (RED) and subsequent amendments encourage the use of renewable fuels as blending components in petrol. At the CEN/TC 19 meeting in May 2011, a priority was placed on “E10+” petrol in order to be prepared for future market and legislative decisions. It was agreed that a detailed assessment of biofuels and blends in Europe over the coming decade was needed that should be prepared through a multi-stakeholder approach. To develop this longer-term vision, CEN/TC 19 worked together as Industry and Stakeholder partners to complete this assessment and outline the possible constraints and advantages of a future E10+ petrol. This led to the publication of CEN/TR 16514 [2].

In April 2023, European regulation 2023/851 was adopted that dictates that all new cars and vans registered in Europe after 2035 should not produce any tailpipe CO₂ emissions, which effectively means a ban on new light-duty vehicles powered by internal combustion engines (ICEs) using fuels containing carbon. However, light-duty vehicles equipped with ICEs will continue to operate for several decades, so renewable fuels are needed in increasing amounts to replace fossil fuels and help meet the increasing targets for lower carbon and greenhouse gas emissions from the transport sector.

In 2022, a Task Force (TF) under CEN/TC 19 was formed with the intent of developing consensus on technical requirements for an E10+ fuel specification, with the following terms of reference:

The scope of work of the TF is to ‘study the DIN and CUNA work to develop consensus on technical requirements for an E10+ fuel specification what could be formed into a CEN/TS (Technical Specification) and supported with sufficient technical substantiation to be written into a CEN/TR (Technical Report)’. In layman’s words: the group of experts shall take what has been done already and draft a fuel quality specification for petrol blended with more than 3,7 % (m/m) of oxygen-containing products. That shall be presented to CEN/TC 19 WG21 for discussion, agreement and continual balloting. In parallel, all deliberations and discussions around each property, limit as well as test method applicability, should be recorded to become an official technical background report by CEN.

Motivated by the decarbonisation of the transport sector, several organisations executed studies with alternative fuels that formed the basis of this Technical Specification. In 2017, ENI and FCA (Fiat) started a study on an alternative alcohol-based fuel (15 % methanol and 5 % ethanol – A20) to validate a fuel with a maximum oxygen content of 10 % (m/m). The fuel was tested in five cars. Eventually, CUNA (Italian Technical Commission for Unification in the Automotive Industry) published a specification for this A20 fuel [3]. In 2021 and 2022, DIN executed a study with the intention to align on product properties options for a petrol fuel containing ~20 % ethanol [4]. Furthermore, a CEN Technical Report (CEN/TR 16514) was prepared by TC/19 in 2013 “Automotive fuels – Unleaded petrol containing more than 3,7 % (m/m) oxygen – Roadmap, test methods and requirements for E10+ petrol”. That report discusses the considerations required for the introduction of E20 petrol, covering the legislative, environmental, production and operation factors.

CEN/TR 18238:2025 (E)

This document is concerned with explaining the rationale underpinning the technical limit values and related controls that are defined in the E20 CEN/TS 18227 [54] as discussed in the CEN E20 Task Force and adopted in CEN/TC 19 WG21 (specification for unleaded petrol). Some work was done in consideration of the applicability of test methods employed in EN 228 to the E20 CEN/TS 18227 and is recorded in CEN/TR 16514 [2], with an update given in this report. At the time of publication of this document, petrol with a higher ethanol content than 10 % (V/V) or oxygen content higher than 3,7 % (m/m) is not allowed on the market in EU countries according to the Fuel Quality Directive (FQD) [5], therefore revisions to the FQD in these aspects would be required to enable E20 petrol to be placed on the market in the European Union.

NOTE In the TF it was agreed to name the new specification 'E20' instead of 'E10+' to better align with standard practices in CEN and align with pump marking practice in Europe e.g. E5 and E10 existing petrol grades whereby the petrol fuel grades are defined by the maximum allowable ethanol content.

1 Scope

This document gives the technical rationale for the requirements and parameters for petrol as defined in CEN/TS 18227, with a minimum oxygen content of 3,7 % (*m/m*) and a maximum of 8,0 % (*m/m*). This fuel has maximum 20,0 % (*V/V*) ethanol and/or of 22 % (*V/V*) fuel ethers with 5 or more carbons.

NOTE 1 This document is directly related to CEN/TS 18227 and will be updated once further publications take place.

NOTE 2 For the purpose of this document, the terms “% (*m/m*)” and “% (*V/V*)” are used to represent respectively the mass fraction and the volume fraction.

2 Terms and definitions

No terms and definitions are listed in this document.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

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