SLOVENSKI STANDARD
SIST EN 17124:2026

01-junij-2026

Nadomešča:
SIST EN 17124:2022

Vodik kot gorivo - Specifikacija proizvoda in zagotavljanje kakovosti tekočega ali plinastega vodika na polnilnih postajah - Gorivne celice z membrano za protonsko izmenjavo (PEM) za cestna vozila

Hydrogen fuel - Product specification and quality assurance for hydrogen refuelling points dispensing liquid or gaseous hydrogen - Proton exchange membrane (PEM) fuel cell applications for vehicles

Wasserstoff als Kraftstoff - Produktfestlegung und Qualitätssicherung für die Abgabe von flüssigem oder gasförmigem Wasserstoff - Protonenaustauschmembran (PEM)-Brennstoffzellenanwendungen für Fahrzeuge

Carburant hydrogène - Spécification de produit et assurance qualité pour les points de ravitaillement en hydrogène distribuant de l'hydrogène gazeux - Applications des piles à combustible à membrane à échange de protons (MEP) pour les véhicules

Ta slovenski standard je istoveten z: **EN 17124:2026**

ICS:

27.075	Tehnologija vodika	Hydrogen technologies
43.060.40	Sistemi za gorivo	Fuel systems

SIST EN 17124:2026 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17124

April 2026

ICS 75.160.20; 27.075

Supersedes EN 17124:2022

English Version

Hydrogen fuel - Product specification and quality assurance for hydrogen refuelling points dispensing liquid or gaseous hydrogen - Proton exchange membrane (PEM) fuel cell applications for vehicles

Carburant hydrogène - Spécification de produit et assurance qualité pour les points de ravitaillement en hydrogène distribuant de l'hydrogène liquide ou gazeux - Applications des piles à combustible à membrane d'échange de protons (MEP) pour les véhicules

Wasserstoff als Kraftstoff - Produktfestlegung und Qualitätssicherung für die Abgabe von flüssigem oder gasförmigem Wasserstoff - Protonenaustauschmembran (PEM)-Brennstoffzellenanwendungen für Fahrzeuge

This European Standard was approved by CEN on 6 March 2026.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

Ref. No. EN 17124:2026 E

Contents

Page

European foreword ... 3
1 Scope ... 4
2 Normative references ... 4
3 Terms and definitions ... 4
4 Requirements ... 5
5 Hydrogen quality assurance methodology ... 6
5.1 General requirements – Potential sources of impurities ... 6
5.2 Prescriptive approach for hydrogen quality assurance ... 6
5.3 Risk assessment for hydrogen and quality assurance ... 6
5.4 Impact of impurities on fuel cell power train ... 9
6 Hydrogen quality control approaches ... 10
6.1 General requirements ... 10
6.2 Spot sampling ... 10
6.3 Monitoring ... 11
7 Routine quality control ... 11
8 Non-routine quality control ... 11
9 Non compliances ... 12
Annex A (informative) Impact of impurities ... 13
Annex B (informative) Example of supply chain evaluation with regards to potential sources of impurities ... 17
Annex C (informative) Example of risk assessment template ... 21
Bibliography ... 23

European foreword

This document (EN 17124:2026) has been prepared by Technical Committee CEN/TC 268 “Cryogenic vessels and specific hydrogen technologies applications”, the secretariat of which is held by AFNOR.

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 October 2026, and conflicting national standards shall be withdrawn at the latest by October 2026.

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.

This document supersedes EN 17124:2022.

EN 17124:2026 includes the following significant technical changes with respect to EN 17124:2022:

— the document is now applicable to both gaseous and liquid hydrogen;

— Annex C has been revised to provide a template to be used as an example for the risk assessment.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

1 Scope

This document specifies the quality characteristics of liquid or gaseous hydrogen fuel dispensed at hydrogen refuelling stations for use in proton exchange membrane (PEM) fuel cell vehicle systems, and the corresponding quality assurance considerations for ensuring uniformity of the hydrogen fuel.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

3.1
constituent
component (or compound) found within a hydrogen fuel mixture

3.2
contaminant
impurity that adversely affects the components within the fuel cell system or the hydrogen storage system

Note 1 to entry: An adverse effect can be reversible or irreversible.

3.3
detection limit
lowest quantity of a substance that can be distinguished from the absence of that substance with a stated confidence limit

3.4
fuel cell system
power system used for the generation of electricity on a fuel cell vehicle, typically containing the following subsystems: fuel cell stack, air processing, fuel processing, thermal management and water management

3.5
hydrogen fuel index
fraction or percentage of a fuel mixture that is hydrogen

3.6
irreversible effect
effect which results in a permanent degradation of the fuel cell power system performance that cannot be restored by practical changes of operational conditions and/or gas composition

3.7
on-site fuel supply
hydrogen fuel supplying system with a hydrogen production system in the same site

3.8
off-site fuel supply
hydrogen fuel supplying system without a hydrogen production system in the same site, receiving hydrogen fuel which is produced out of the site

3.9
particulate
solid or liquid particle (aerosol) that can be entrained somewhere in the delivery, storage, or transfer of the hydrogen fuel

3.10
reversible effect
effect which results in a non-permanent degradation of the fuel cell power system performance that can be restored by practical changes of operational conditions and/or gas composition

4 Requirements

The fuel quality requirements at the dispenser nozzle shall meet the requirements of Table 1.

NOTE The fuel specification is not process or feedstock specific. Non-listed contaminants have no guarantee of being benign.

Table 1 — Fuel quality specifications for PEM fuel cell road vehicle applications

Constituent	Characteristics
Hydrogen fuel index (minimum mole fraction) [a]	99,97 %
Total non-hydrogen gases	300 µmol/mol
Maximum concentration of individual contaminants	
Water (H_2O) [b]	5 µmol/mol
Total hydrocarbons [c] (excluding methane) C1 equivalent	2 µmol/mol
Methane (CH_4)	100 µmol/mol
Oxygen (O_2)	5 µmol/mol
Helium (He)	300 µmol/mol
Nitrogen (N_2)	300 µmol/mol
Argon (Ar)	300 µmol/mol
Carbon dioxide (CO_2)	2 µmol/mol
Carbon monoxide (CO) [d]	0,2 µmol/mol
Sulfur compounds (H_2S equivalent) [e]	0,004 µmol/mol
Formaldehyde (HCHO) [d]	0,2 µmol/mol
Ammonia (NH_3)	0,1 µmol/mol
Halogenated compounds [f] (halogen equivalent)	0,05 µmol/mol
Maximum particulates concentration	1 mg/kg