

STN P	Aplikácie vodíka Hodnotenie a kvalifikácia kompatibility materiálov Zariadenia používané v komerčných a priemyselných rozvodoch vrátane plynových horákov, spotrebičov na plynné palivá a infraštruktúry pre plynné palivá	STN P CEN/TS 18173 38 6451
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Hydrogen applications - Material compatibility evaluation and qualification - Equipment used in commercial, industrial installations including gas burners, gas burning appliances and fuel gas infrastructures

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/26

Táto predbežná slovenská technická norma je určená na overenie. Prípadné pripomienky pošlite do októbra 2027 Úradu pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky.

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TECHNICAL SPECIFICATION**CEN/TS 18173****SPÉCIFICATION TECHNIQUE****TECHNISCHE SPEZIFIKATION**

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English Version

**Hydrogen applications - Material compatibility evaluation
and qualification - Equipment used in commercial,
industrial installations including gas burners, gas burning
appliances and fuel gas infrastructures**

H2-Readiness von Gas-Infrastrukturen- Anforderungen
und Prüfverfahren für die Materialeignung von
Ausrüstung

This Technical Specification (CEN/TS) was approved by CEN on 4 August 2025 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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CEN/TS 18173:2025 (E)**European foreword**

This document (CEN/TS 18173:2025) has been prepared by Technical Committee CEN/TC 235 “Gas pressure regulators and associated safety devices for use in gas transmission and distribution”, the secretariat of which is held by UNI.

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Introduction

This document is the first edition and reflects the current situation. This can be taken into account in further development of the document.

The criteria provided in this document for the qualification of materials represent the best knowledge and judgment available at the time of this release, drawing from technical literature and standards related to materials for hydrogen applications.

CEN/TS 18173:2025 (E)**1 Scope**

This document provides guidance to relevant product standards, for compatibility assessment and qualification of materials for equipment used in commercial, industrial installations including gas burners, gas burning appliances and fuel gas infrastructures¹ that are:

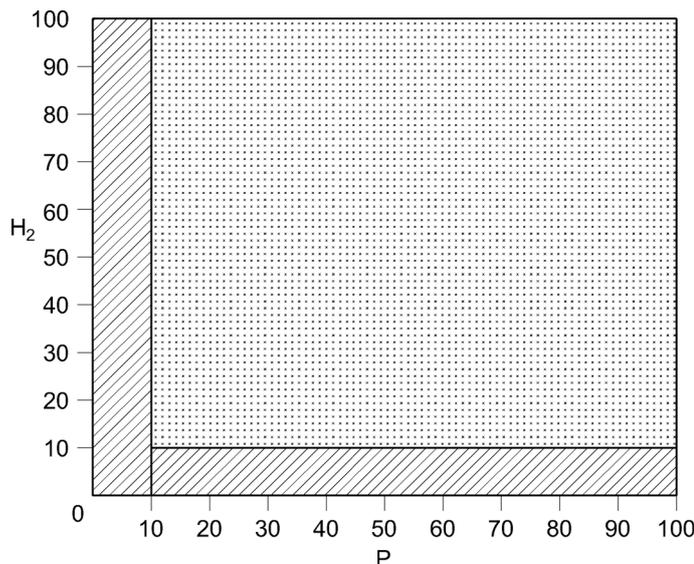
- fed by admixture of natural gas and hydrogen (blending) or pure hydrogen;
- operated at pressure greater than 10 bar (1 MPa) and up to 100 bar (10 MPa);
- operated within a temperature range of -20°C to $+60^{\circ}\text{C}$;

NOTE 1 Temperature range outside of -20° to $+60^{\circ}\text{C}$ can be considered after risk assessment by the manufacturer, in compliance with relevant product standard and the requirements specified in this document.

Except for critical equipment, where hydrogen requirements and material compatibility are defined by relevant specific, national and international product standard, according to CEN/TR 17924 and CEN/TR 17797, no specific requirements are necessary, as detailed in this document (see also Figure 1), under the following conditions:

- for a homogeneous mixture of natural gas and hydrogen with a hydrogen content not exceeding 10 % by volume, at operating pressures up to 100 bar (10 MPa); or
- for operating pressures up to 10 bar (1 MPa) with a hydrogen content up to 100 % by volume.
- Equipment is classified as critical when it's subjected to fatigue or specific mechanical stress due to specific operating conditions and applications (i.e. compression and pumping station, specific industrial installations, fuel tanks for vehicles, ...).

¹ For information regarding the compatibility of materials used in Gas Appliances, refer to CEN/TR 17924. For gas infrastructure, see CEN/TR 17797.

**Key**

- H₂ hydrogen content, expressed in percentage by volume (vol %)
- P operating pressure, expressed in bar (bar)
-  specific requirements are needed
-  no specific requirements are needed

Figure 1 — Operating conditions

This document represents minimum requirements and does not restrict the use of better procedures or materials.

The following items are detailed in this document:

- metallic materials;
- non-metallic materials;
- validation tests.

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 ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1)*

EN ISO 23936-2:2011, *Petroleum, petrochemical and natural gas industries — Non-metallic materials in contact with media related to oil and gas production — Part 2: Elastomers (ISO 23936-2:2011)*

ISO 2782-1, *Rubber, vulcanized or thermoplastic — Determination of permeability to gases — Part 1: Differential-pressure methods*

ISO 16573-1, *Steel — Measurement method for the evaluation of hydrogen embrittlement resistance of high strength steels — Part 1: Constant load test*

ASME B31.12:2023, *Hydrogen Piping and Pipelines*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN