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## Hydrogen fuel quality — Product specification

*Qualité du carburant hydrogène — Spécification de produit*

**ISO 14687**

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**Second edition  
2025-02**



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This document was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*.

This second edition cancels and replaces the first edition (ISO 14687:2019), which has been technically revised.

The main changes are as follows:

- a new Grade of hydrogen quality for internal combustion engine (Grade F) applications has been added in Informative [Annex F](#);
- rationale for each Grade D specification has been moved from ISO19880-8 to this document;
- each specification for each Grade has been modified reflecting recent research work and change in industrial needs.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

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In recent years, the landscape for using hydrogen as a fuel has changed significantly in response to its potential to contribute to the reduction of greenhouse gas emissions. This shift is influenced by challenges on both the hydrogen supply side, such as production technologies and supply chain infrastructure, and also the hydrogen energy usage side, including advancements in fuel cell and combustion technology. To address these changing conditions, the hydrogen fuel specifications in this document have been updated.

The hydrogen fuel specifications for proton exchange membrane (PEM) fuel cell applications in this document are primarily based on research, development and data on the following items [\[2\]](#)[\[3\]](#)[\[4\]](#)[\[5\]](#)[\[6\]](#)[\[7\]](#)[\[8\]](#)[\[9\]](#)[\[10\]](#)[\[11\]](#)[\[12\]](#)[\[13\]](#)[\[14\]](#):

- PEM fuel cell catalyst and fuel cell tolerance to hydrogen fuel impurities;
- effects/mechanisms of impurities on fuel cell power systems and components;
- impurity detection and measurement techniques for laboratory, production and in-field operations;
- fuel cell vehicle demonstration and stationary fuel cell demonstration results.

Grade D and grade E in this document are intended to apply to PEM fuel cells for road vehicles and stationary appliances, respectively. These aim to facilitate the provision of hydrogen of reliable quality balanced with acceptable lower cost for the hydrogen fuel supply.

In addition, Grades F-1 and F-2 are newly specified in this edition to apply to hydrogen internal combustion engines for use in vehicular and stationary applications, respectively. The new Grades were placed in an informative annex ([Annex F](#)) to allow experience to be gained with this fuel quality prior to inclusion in the normative text.

While this document reflects the state-of-the-art at the date of its publication, the rapid development of quality requirements for hydrogen technology applications would necessitate future revisions in response to technological progress.