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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 43361-2023

**Gas analysis - Analytical methods validation for hydrogen fuel
in proton exchange membrane(PEM) fuel cell applications for
road vehicles**

气体分析 道路车辆用质子交换膜燃料电池氢燃料分析方法的确认
(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document is modified to adopt ISO 21087:2019 "Gas Analysis Hydrogen Fuel Analysis Methods Proton Exchange Membrane Fuel for Road Vehicles" Battery":

Compared with ISO 21087:2019, there are many technical differences between this document and the clauses involved in the outer margin of the page:

Single lines (l) are marked: A list of these technical differences and their causes is provided in Appendix A:

The following editorial changes have been made to this document:

---The name of the standard was changed to "Confirmation of hydrogen fuel analysis method for proton exchange membrane fuel cells for gas analysis road vehicles";

---Change $\bar{x}$ to $\bar{x}$ (see Chapter 4, 6.2:3:1, 6.2:5:1);

---Change $\bar{x}$ to $\bar{x}$ (see Chapter 4, 6.2:5:1);

---Change "ISO 14687:-" to "ISO 14687:2019" (see 6.2:2:2);

---Added explanation of total precision (see 6.2:7:1);

---Changed the "reference materials" in Table 2 (see Table 2):

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

1 Scope

This document specifies the validation rules for analytical methods to ensure hydrogen quality and the requirements for reporting analysis results: It provides relevant measurement results:

Recommendations for uncertainty assessment of results (expressed in mole fraction) are given, and are applicable to hydrogen based on the technical requirements for hydrogen in ISO 14687:2019:

A list of analytical methods for each impurity in the gas and recommendations to ensure the quality of measurement results and ensure sample integrity:

This document applies to proton exchange membrane fuel supplied to road vehicles after sampling from hydrogen filling stations or hydrogenation stations and sending it to laboratories for analysis:

Analysis of gaseous hydrogen samples used in batteries:

This document does not apply to online monitoring of hydrogen:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations for undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 6379.3 Accuracy of measurement methods and results (correctness and precision)
Part 3: Precision of standard measurement methods intermediate measure GB/T 10628
Determination and calibration comparison method of gas analysis calibration gas mixture
composition GB/T 14850 Gas Analysis Vocabulary GB/T 27417 Guidelines for Validation
and Validation of Chemical Analysis Methods for Conformity Assessment GB/T 32467
Chemical analysis method validation and internal quality control terms and definitions ISO
12963 Gas analysis Comparative method for determination of the composition of mixed
gases based on single-point and two-point calibration (Gasanalysis-pointcalibration)
ISBN978-91-87461-59-0 European Guide to Chemistry: Laboratory guidance for method
validation and associated rules for the suitability of analytical methods

3 Terms and definitions

The terms and definitions defined in GB/T 6379.3, GB/T 14850, GB/T 27417 and GB/T 32467 apply to this document:

4 Symbols

The following symbols apply to this document: