

BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा

सड़क वाहन - संपीडित गैसीय हाइड्रोजन (सीजीएच₂) और हाइड्रोजन/प्राकृतिक गैस
मिश्रण ईंधन प्रणाली - भाग 1: सुरक्षा आवश्यकताएँ

Draft Indian Standard

**Road vehicles — Compressed gaseous hydrogen (CGH₂) and hydrogen/natural gas blends
fuel systems — Part 1: Safety requirements**

ICS: 43.060.40

Automotive Vehicles Running on Non Conventional Energy
Sources Sectional Committee, TED 26

Last Date for Comments: 29/11/2024

Automotive Vehicles Running on Non Conventional Energy Sources Sectional Committee, TED
 26

NATIONAL FOREWORD

This draft Indian Standard (Part 1) which is identical with ISO 21266-1: 2018 ‘Road vehicles — Compressed gaseous hydrogen (CGH₂) and hydrogen/natural gas blends fuel systems — Part 1: Safety requirements’ issued by International Organization for Standardization (ISO), will be adopted by the Bureau of Indian Standards on the recommendations of Automotive Vehicles Running on Non Conventional Energy Sources Sectional Committee and after approval of the Transport Engineering Division Council (TEDC).

The text of ISO standard is proposed for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words ‘International Standard’ appear referring to this standard, they should be read as ‘Indian Standard’.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standard for which Indian Standard also exist. The corresponding Indian Standard, which is to be substituted in their respective places, is listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 17268: 2020 Gaseous Hydrogen Land Vehicle Refuelling Connection Devices	IS/ISO 17268: 2020 Gaseous Hydrogen Land Vehicle Refuelling Connection Devices	Identical under single numbering
ISO 14687-1 Hydrogen fuel — Product specification — Part 1: All applications except proton exchange membrane (PEM) fuel cell for road vehicles	IS 16061: 2021 ISO 14687:2019 Hydrogen Fuel Quality Product Specification	Identical under dual numbering

ISO 14687-2 Hydrogen fuel — Product specification — Part 2: Proton exchange membrane (PEM) fuel cell applications for road vehicles	IS 16061: 2021 ISO 14687:2019 Hydrogen Fuel Quality Product Specification	Identical under dual numbering
IEC 60079-10-1 Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres	IS/IEC 60079-10-2 : 2015 IEC 60079-10-2 : 2015 Explosive atmospheres: Part 10 classification of areas: Sec 2 explosive dust atmospheres (First Revision)	Identical under single numbering
ISO 12619 (all parts) Road vehicles — Compressed gaseous hydrogen (CGH ₂) and hydrogen/natural gas blends fuel system components	IS/ISO 12619 : (Part 1 to 16)	Identical under single numbering
ISO 21266-2 : 2018 Road vehicles — Compressed gaseous hydrogen (CGH ₂) and hydrogen/natural gas blend fuel system components — Part 2: test methods	Doc No-TED26(26638)	Document under Development

The technical committee may review the provisions of following International Standards referred in this adopted standard and may decide if they are acceptable for use in conjunction with this draft standard:

<i>International Standards</i>	<i>Title</i>
ISO 1176 : 1990	Road vehicles — Masses — Vocabulary and codes
ISO 16380 : 2014	Road vehicles — Blended fuels refuelling connector

ISO 20653 : 2023	, Road vehicles — Degrees of protection (IP code) — Protection of electrical equipment against foreign objects, water and access
ISO 19881 : 2018	Gaseous hydrogen — Land vehicle fuel containers

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. The Bureau of Indian Standards shall not be held responsible for identifying any or all such patent rights.

Annex A and B forms informative/normative part of this standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding off numerical values (second revision)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Scope

This document specifies the minimum safety requirements applicable for the functionality of compressed gaseous hydrogen (CGH₂) and hydrogen/natural gas blends on-board fuel systems intended for use on the types of motor vehicles defined in ISO 3833.

It is applicable to vehicles using compressed gaseous hydrogen (CGH₂), in accordance with ISO 14687-1 or ISO 14687-2, and hydrogen/natural gas blends using natural gas, in accordance with ISO 15403-1 and ISO/TR 15403-2. It is not applicable to the following:

- 1) liquefied hydrogen (LH₂) fuel system components;
- 2) fuel containers;
- 3) stationary gas engines;
- 4) container mounting hardware;
- 5) electronic fuel management;
- 6) refuelling receptacles; and
- 7) fuel cell vehicles.

Notes —

- 1) It is recognized that miscellaneous components not specifically covered herein can be examined to meet the criteria of this document and tested according to the appropriate functional tests.
- 2) All references to pressure in this document are considered gauge pressures unless otherwise specified.

All matters relating to the skills of installers and converters have been excluded from this document.

FOR COMPLETE TEXT OF THE DOCUMENT KINDLY REFER ISO 21266-1: 2018 or CONTACT:

A. P. D. Dwivedi
Scientist-F & Head
Transport Engineering Department
Bureau of Indian Standards
9 Bahadur Shah Zafar Marg
New Delhi 110 002
Email: ted@bis.gov.in; hted@bis.gov.in
Telefax: 011- 2323 6311