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Hydrogen fuel — Product specification

Carburant hydrogène — Spécification de produit



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

Hydrogen fuel — Product specification

1 Scope

This International Standard specifies the quality characteristics of hydrogen fuel in order to assure uniformity of the hydrogen product as produced and distributed for utilization in vehicular, appliance or other fuelling applications.

This International Standard applies to all modes of transportation and hydrogen fuelling applications (ground, water, air and space).

2 Terms and definitions

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

2.1

gaseous hydrogen

GH₂

hydrogen that has been produced to gaseous form, and brought to essentially ambient conditions as an equilibrium mixture of *ortho*-hydrogen and *para*-hydrogen, purified to a minimum mole fraction of 98 %

NOTE The gaseous form is produced typically by any number of methods, including petrochemical, thermochemical, solar, electrolytic or biological processes.

2.2

liquid hydrogen

LH₂

hydrogen that has been liquefied, i.e. brought to a liquid state (*para*)

NOTE Liquefaction may be carried out by either chilling and compression or other means such as the magnetocaloric effect.

2.3

slush hydrogen

SLH₂

hydrogen that is a mixture of solid and LH₂ at the eutectic (triple-point) temperature

3 Requirements

3.1 Classification

Hydrogen fuel shall be classified according to the following types and grade designations:

- | | |
|---------------------------------|------------------|
| a) Type I (grades A, B, and C): | Gaseous hydrogen |
| b) Type II: | Liquid hydrogen |
| c) Type III: | Slush hydrogen |