Australian STANDARD®

Hydrogen generators using fuel processing technologies

Part 2: Test methods for performance

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Australian STANDARD®

Hydrogen generators using fuel processing technologies

Part 2: Test methods for performance

First published as AS ISO 16110.2:2020.

Preface

This Standard was prepared by the Standards Australia Committee ME-093, Hydrogen Technologies.

The objective of this document is to provide test procedures for determining the performance of packaged, self-contained or factory matched hydrogen generation systems with a capacity less than 400 m^3/h at 0 °C and 101325 kPa, referred to as hydrogen generators, that convert a fuel to a hydrogen-rich stream of composition and conditions suitable for the type of device using the hydrogen (e.g. a fuel cell power system, or a hydrogen compression, storage and delivery system).

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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 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16110-2 was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*.

ISO 16110 consists of the following parts, under the general title *Hydrogen generators using fuel processing technologies*:

— *Part 1: Safety*

— *Part 2: Test methods for performance*

Introduction

This part of ISO 16110 describes how to measure and document the performance of stationary hydrogen generators for residential, commercial and industrial applications.

The following hydrogen generation types have been considered:

— hydrogen generators using fuel processing technologies.

Australian Standard®

Hydrogen generators using fuel processing technologies

Part 2: Test methods for performance

1 Scope

This part of ISO 16110 provides test procedures for determining the performance of packaged, self-contained or factory matched hydrogen generation systems with a capacity less than 400 m^3/h at 0 °C and 101,325 kPa, herein referred to as hydrogen generators, that convert a fuel to a hydrogen-rich stream of composition and conditions suitable for the type of device using the hydrogen (e.g. a fuel cell power system, or a hydrogen compression, storage and delivery system).

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 3744, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane*

ISO 4677 (all parts), *Atmospheres for conditioning and testing - Determination of relative humidity*

ISO 5167 (all parts), *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full*

ISO 6060, *Water quality - Determination of the chemical oxygen demand*

ISO 6326 (all parts), *Natural gas - Determination of sulfur compounds*

ISO 6974 (all parts), *Natural gas - Determination of composition with defined uncertainty by gas chromatography*

ISO 6975, *Natural gas - Extended analysis - Gas-chromatographic method*

ISO 7934, *Stationary source emissions - Determination of the mass concentration of sulfur dioxide - Hydrogen peroxide/barium perchlorate/Thorin method*

ISO 9096, *Stationary source emissions - Manual determination of mass concentration of particulate matter*

ISO 10101 (all parts), *Natural gas - Determination of water by the Karl Fischer method*

ISO 10523, *Water quality - Determination of pH*

ISO 10707, *Water quality - Evaluation in an aqueous medium of the "ultimate" aerobic biodegradability of organic compounds - Method by analysis of biochemical oxygen demand (closed bottle test)*

ISO 11042 (all parts), *Gas turbines - Exhaust gas emission*

ISO 11541, *Natural gas - Determination of water content at high pressure*

ISO 11564, *Stationary source emissions - Determination of the mass concentration of nitrogen oxides - Naphthylethylenediamine photometric method*

ISO 14687-1, *Hydrogen fuel - Product specification - Part 1: All applications except proton exchange membrane (PEM) fuel cell for road vehicles*

ISO 14687-2, *Hydrogen fuel - Product specification - Part 2: Proton exchange membrane (PEM) fuel cell applications for road vehicles*