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BS ISO 22734-2:2011



BSI Standards Publication

Hydrogen generators using water electrolysis process

Part 2: Residential applications

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This British Standard is the UK implementation of ISO 22734-2:2011.

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Part 2: Residential applications

*Générateurs d'hydrogène utilisant le procédé d'électrolyse de l'eau —
Partie 2: Applications résidentielles*



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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 22734-2 was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*.

ISO 22734 consists of the following parts, under the general title *Hydrogen generators using water electrolysis process*:

- *Part 1: Industrial and commercial applications*
- *Part 2: Residential applications*

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Introduction

The technology in this part of ISO 22734 is as follows.

In a hydrogen generator cell, electricity causes dissociation of water into hydrogen and oxygen molecules. An electric current is passed between two electrodes separated by a conductive electrolyte or "ion transport medium", producing hydrogen at the negative electrode (cathode) and oxygen at the positive electrode (anode). As water is H₂O, twice the volume of hydrogen is produced compared with oxygen.

Hydrogen gas produced using electrolysis technology can be utilized immediately or stored for later use.

The cell(s), and electrical, gas processing, ventilation, cooling, monitoring equipment and controls are contained within an enclosure. Gas compression and feed water conditioning and auxiliary equipment may also be included.

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Hydrogen generators using water electrolysis process —

Part 2: Residential applications

1 Scope

This part of ISO 22734 defines the construction, safety and performance requirements of packaged hydrogen gas generation appliances, herein referred to as hydrogen generators, using electrochemical reactions to electrolyse water to produce hydrogen.

This part of ISO 22734 is applicable to hydrogen generators that use the following types of ion transport medium:

- group of aqueous bases;
- solid polymeric materials with acidic function group additions, such as acid proton exchange membrane (PEM).

This part of ISO 22734 is applicable to hydrogen generators intended for indoor and outdoor residential use in sheltered areas, such as car-ports, garages, utility rooms and similar areas of a residence. This part of ISO 22734 includes cord-connected equipment for outdoor and garage use only.

Portable generators as well as hydrogen generators that can also be used to generate electricity, such as reversible fuel cells, are excluded from the scope of this part of ISO 22734.

Hydrogen generators that also supply oxygen as a product are excluded from the scope of this part of ISO 22734.

This part of ISO 22734 is intended to be used for certification purposes.

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 1182, *Reaction to fire tests for products — Non-combustibility test*

ISO 3746, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane*

ISO 3864-2, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 4126-1, *Safety devices for protection against excessive pressure — Part 1: Safety valves*

ISO 4126-2, *Safety devices for protection against excessive pressure — Part 2: Bursting disc safety devices*

ISO 4126-6, *Safety devices for protection against excessive pressure — Part 6: Application, selection and installation of bursting disc safety devices*

ISO 7000, *Graphical symbols for use on equipment — Index and synopsis*