



SLOVENSKI STANDARD
SIST EN 62282-6-100:2010/A1:2014
01-februar-2014

**Tehnologija gorivnih celic - 6-100. del: Tehnologija mikro gorivnih celic - Varnost -
Dopolnilo A1 (IEC 62282-6-100:2010/A1:2012)**

Fuel cell technologies - Part 6-100: Micro fuel cell power systems - Safety

Brennstoffzellentechnologien - Teil 6-100: Mikro-Brennstoffzellen-Energiesysteme -
Sicherheit

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Technologies des piles à combustible - Partie 6-100: Système à micro-piles à
combustible - Sécurité

[SIST EN 62282-6-100:2010/A1:2014](https://standards.iteh.ai/catalog/standards/sist/88eb6d8d-57ce-48fc-9b7a-64c221891051/sist-en-62282-6-100-2010-a1-2014)

Ta slovenski standard je istoveten z: EN 62282-6-100:2010/A1:2012

ICS:

27.070 Gorilne celice Fuel cells

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62282-6-100/A1

December 2012

ICS 27.070

English version

**Fuel cell technologies -
Part 6-100: Micro fuel cell power systems -
Safety**
(IEC 62282-6-100:2010/A1:2012)

Technologies des piles à combustible -
Partie 6-100: Système à micro-piles à
combustible -
Sécurité
(CEI 62282-6-100:2010/A1:2012)

Brennstoffzellentechnologien -
Teil 6-100: Mikro-Brennstoffzellen-
Energiesysteme -
Sicherheit
(IEC 62282-6-100:2010/A1:2012)

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This amendment A1 modifies the European Standard EN 62282-6-100:2010; it was approved by CENELEC on 2012-11-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 105/402/FDIS, future edition 1 of IEC 62282-6-100:2010/A1, prepared by IEC TC 105, "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62282-6-100:2010/A1:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-08-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-11-16

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

Endorsement notice

The text of the International Standard IEC 62282-6-100:2010/A1:2012 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Addition to Annex ZA of EN 62282-6-100:2010:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 7010	2003 ¹	Graphical symbols - Safety colours and safety - signs - Safety signs used in workplaces and public areas		-

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¹ ISO 7010:2003 is superseded by ISO 7010:2012, which is harmonised as EN ISO 7010:2012.

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IEC 62282-6-100

Edition 1.0 2012-10

INTERNATIONAL STANDARD

AMENDMENT 1

Fuel cell technologies – **STANDARD PREVIEW**
Part 6-100: Micro fuel cell power systems – Safety
(standards.iteh.ai)

SIST EN 62282-6-100:2010/A1:2014

<https://standards.iteh.ai/catalog/standards/sist/88eb6d8d-57ce-48fc-9b7a-b4e22189f631/sist-en-62282-6-100-2010-a1-2014>

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ICS 27.070

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FOREWORD

This amendment has been prepared by IEC technical committee 105: Fuel cell technologies.

The text of this amendment is based on the following documents:

FDIS	Report on voting
105/402/FDIS	105/408/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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2 Normative references

Add the following reference:

ISO 7010:2003, *Graphical symbols – Safety colours and safety signs – Safety signs used in workplaces and public areas*

6.1 General

Replace the existing text of 6.1 with the following new text:

All micro fuel cell power systems, micro fuel cell power units and fuel cartridges shall be accompanied by appropriate safety information (instructions, warnings, or both) communicating the intended safe transportation, use, storage, maintenance and disposal of the product, including warnings regarding adequate ventilation for storage.

If space does not permit all markings on the fuel cartridge, markings corresponding to a) through f) in 6.2 may be on the smallest unit package, or on a package insert. The fuel cartridge shall also be marked with the appropriate signal word ("CAUTION", "WARNING" or "DANGER") and the general warning sign (W001 specified in ISO 7010:2003) plus the text:

"(See accompanying Warning Information.)".

E.3 Terms and definitions

Add, after E.3.5, the following new terminological entry:

E.3.6

fuel cartridge

removable article that contains fuel and supplies fuel or hydrogen to the micro fuel cell power unit or internal reservoir, not to be refillable by the user

E.3.11

leakage

Replace the definition of terminological entry E.3.11 with the following:

accessible fuel, hazardous fuel byproducts, electrolyte or hazardous liquid fuel outside the micro fuel cell power system, micro fuel cell power unit or fuel cartridge as described in E.7.2.1

E.3.43

impermissible hydrogen gas loss

Replace the definition of terminological entry E.3.43 with the following:

hydrogen gas escaping non-operating micro fuel cell power system, micro fuel cell power unit, or fuel cartridge greater than or equal to 0,0032 g/h

E.3.52

hydrogen leakage

Replace the definition of terminological entry E.3.52 with the following:

accessible hazardous hydrogen gas outside containment system, including fuel cartridge, fuel management and internal reservoir (see E.7.2.2)

E.3.53

positive pH indication of liquid borohydride fuel and by product

Delete this entry (number, term and definition).

E.7.2.2 Hydrogen leakage measurement from fuel cartridges and measurement procedures

Replace the existing text of E.7.2.2, with the following new text:

- a) For fuel cartridges containing Class 8 (corrosive) borohydride compounds, the measurement of hydrogen leakage shall be done following each type test using a liquid leak detector (bubble forming) solution or other equivalent means, such as a water immersion test, on all possible leak locations of the fuel cartridge.
- b) If bubbles are observed, hydrogen point source gas loss detection testing in accordance with E.7.3.13 shall be performed to ensure no release of hazardous materials to the environment.
- c) If point source testing is performed, hydrogen leakage measurement in accordance with paragraph (a) shall be repeated one hour after completion of the point source test. If bubbles due to hydrogen leakage are observed, the fuel cartridge fails the hydrogen leakage test. See Figure E.2 and Figure E.3.

E.7.2.3 Hydrogen gas loss measurements from micro fuel cell power systems and micro fuel cell power units and measuring procedures

Replace the existing text of E.7.2.3, with the following new text:

For micro fuel cell power systems, or micro fuel cell power units, following the completion of each type test, the micro fuel cell power system or unit shall be tested for hydrogen gas loss according to Figure E.4 as follows.

- a) Perform hydrogen emission testing in accordance with E.7.3.12 with the exception that the micro fuel cell power system or unit shall be off ("DEVICE – OFF"). Hydrogen gas loss shall be less than 0,0032 g/h. If transient emission rates greater than 0,016 g/h are observed during hydrogen emission testing, hydrogen point source gas loss detection testing in accordance with E.7.3.13 shall be performed. See Table E.7.
- b) Perform hydrogen emission testing in accordance with E.7.3.12 with the micro fuel cell power system or unit turned on ("DEVICE – ON") to test for hydrogen emissions whether or not the micro fuel cell power system or unit is operational. Hydrogen emissions shall be less than 0,8 g/h and hydrogen leakage from any single point leak shall be less than 0,016 g/h. See Table E.7.

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Figure E.2 – Fuel cartridge leakage test flow chart for vibration, drop, compressive loading – Replaces Figure 2

Replace the existing Figure E.2, together with its title, with the following:

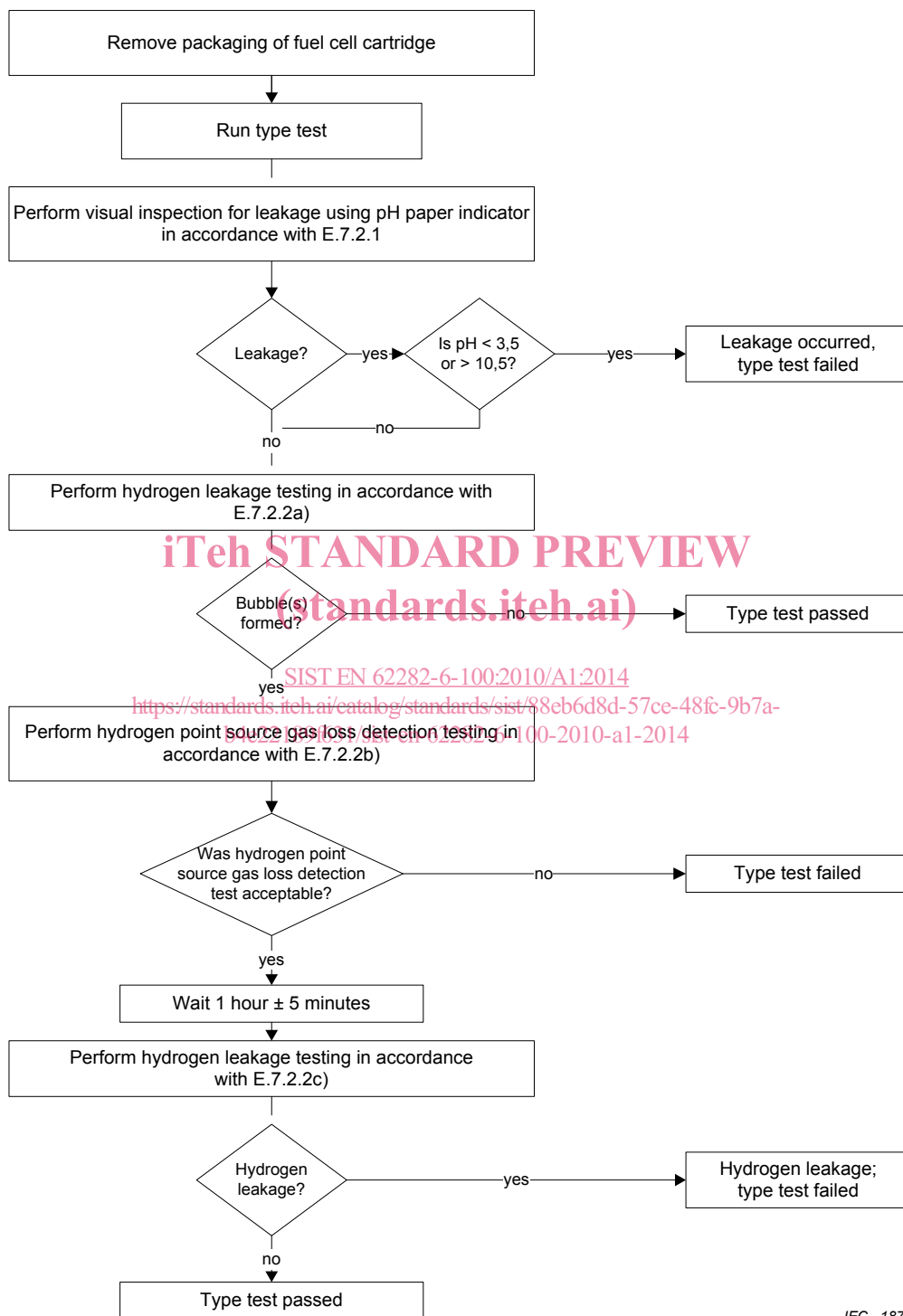
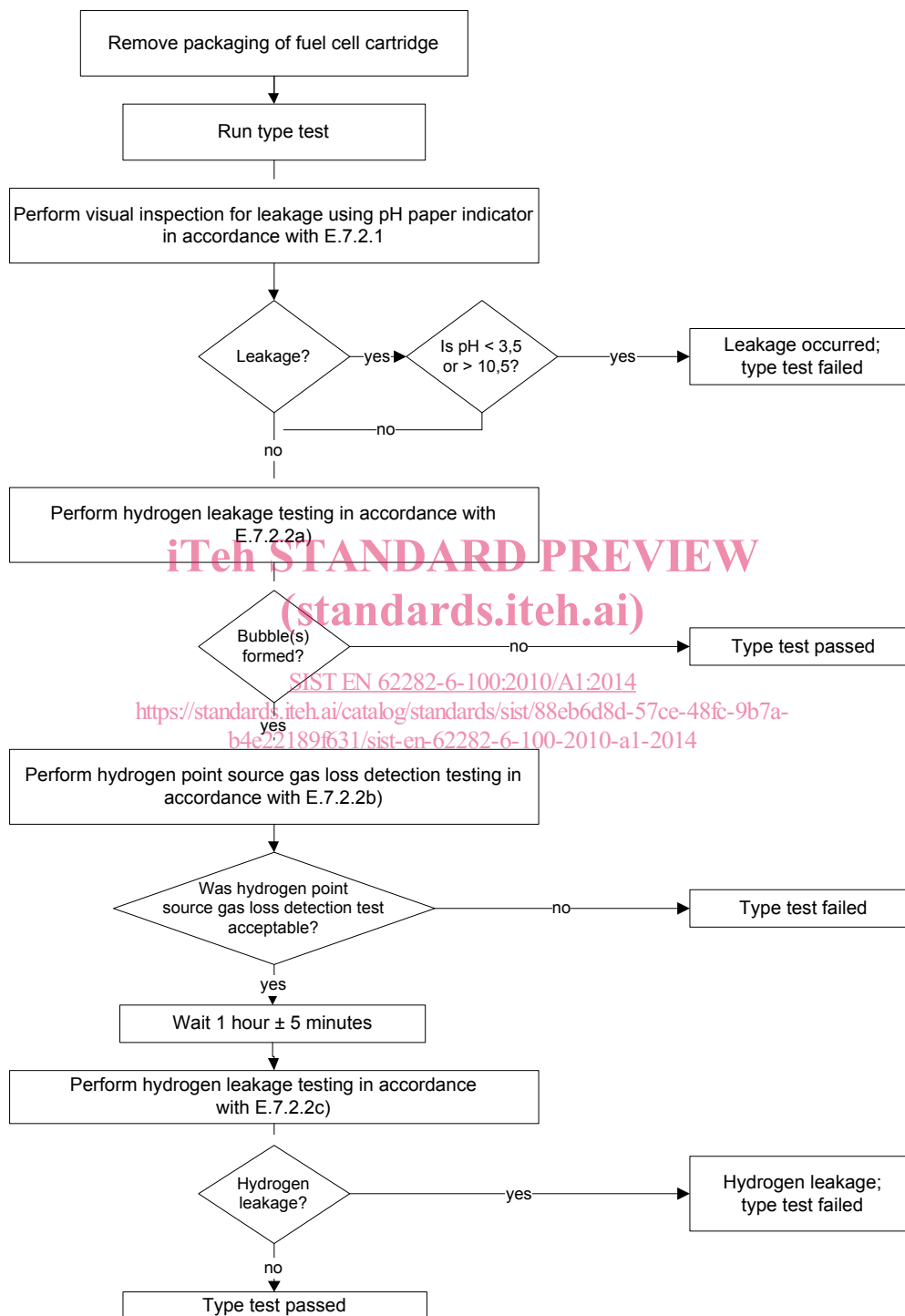


Figure E.2 – Fuel cartridge leakage and hydrogen leakage and test flow chart for vibration, drop, compressive loading – Replaces Figure 2

Figure E.3 – Fuel cartridge leakage and mass loss test flow chart for temperature cycling test and high temperature exposure test – Replaces Figure 3

Replace the existing Figure E.3, together with its title, with the following:

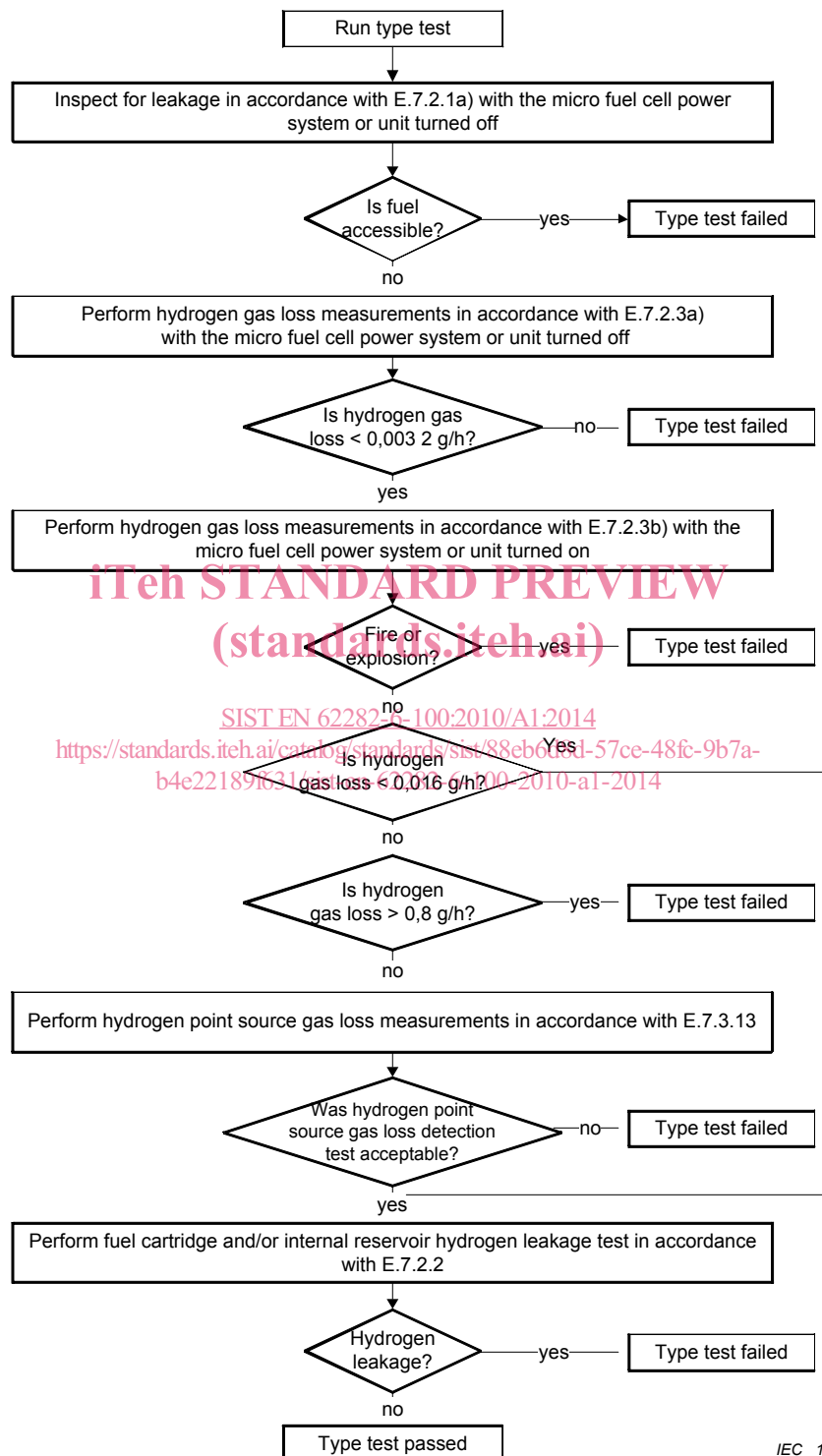


IEC 1875/12

Figure E.3 – Fuel cartridge leakage and hydrogen leakage test flow chart for temperature cycling test and high temperature exposure test – Replaces Figure 3

Figure E.4 – Micro fuel cell power system or micro fuel cell power unit leakage and mass loss test flow chart for pressure differential, vibration, temperature cycling, drop and compressive loading tests – Replaces Figure 4

Replace, the existing Figure E.4, together with its title, with the following:



IEC 1876/12

Figure E.4 – Micro fuel cell power system or micro fuel cell power unit leakage and hydrogen gas loss test flow chart for pressure differential, vibration, temperature cycling, drop and compressive loading tests – Replaces Figure 4