Fuel cell technologies - Part 7-2: Test methods - Single cell and stack performance tests for solid oxide fuel cells (SOFCs)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62282-7-2:2021 sisaldab Euroopa standardi EN IEC 62282-7-2:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 62282-7-2:2021 consists of the English text of the European standard EN IEC 62282-7-2:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.07.2021.	Date of Availability of the European standard is 16.07.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 27.070

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62282-7-2

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English Version

Fuel cell technologies - Part 7-2: Test methods - Single cell and stack performance tests for solid oxide fuel cells (SOFCs) (IEC 62282-7-2:2021)

Technologies des piles à combustible - Partie 7-2: Méthodes d'essai - Essais de performance de cellule élémentaire et de pile pour les piles à combustible à oxyde solide (SOFC) (IEC 62282-7-2:2021)

Brennstoffzellentechnologien - Teil 7-2: Prüfverfahren - Prüfungen zum Nachweis des Einzelzellen- und Stackleistungsverhaltens von Festoxid-Brennstoffzellen (SOFC) (IEC 62282-7-2:2021)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 105/847/FDIS, future edition 1 of IEC 62282-7-2, prepared by IEC/TC 105 "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62282-7-2:2021.

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) 2022-03-25
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-06-25

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

Endorsement notice

The text of the International Standard IEC 62282-7-2:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60352 (series)	NOTE	Harmonized as EN 60352 (series)
IEC 60359	NOTE	Harmonized as EN 60359
IEC 60512-1-1	NOTE	Harmonized as EN 60512-1-1
IEC 60512-8-1	NOTE	Harmonized as EN 60512-8-1
IEC 60512-8-2	NOTE	Harmonized as EN 60512-8-2
IEC 62282-2-100	NOTE	Harmonized as EN IEC 62282-2-100
IEC 62282-8-101	NOTE	Harmonized as EN IEC 62282-8-101

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60050-485	-	International Electrotechnical Vocabulary (IEV) - Part 485: Fuel cell technologies	-	-
IEC 60584-1	-	Thermocouples - Part 1: EMF specifications and tolerances	EN 60584-1	-
IEC 60584-3	-	Thermocouples - Part 3: Extension and compensating cables - Tolerances and identification system	EN IEC 60584-3	-
IEC 61515	-	Mineral insulated metal-sheathed thermocouple cables and thermocouples	EN 61515	-
ISO 5168	-	Measurement of fluid flow - Procedures for the evaluation of uncertainties	-	-
ISO 6141	-	Gas analysis - Contents of certificates for calibration gas mixtures	EN ISO 6141	-
ISO 6142-1	-	Gas analysis - Preparation of calibration gas mixtures - Part 1: Gravimetric method for Class I mixtures	EN ISO 6142-1	-
ISO 6143	-	Gas analysis - Comparison methods for determining and checking the composition of calibration gas mixtures	EN ISO 6143	-
ISO 6145-7	-	Gas analysis - Preparation of calibration gas mixtures using dynamic methods - Part 7: Thermal mass-flow controllers	EN ISO 6145-7	-
ISO 6974	series	Natural gas - Determination of composition with defined uncertainty by gas chromatography	EN ISO 6974	series
ISO 7066-2	-	Assessment of uncertainty in the calibration and use of flow measurement devices - Part 2: Non-linear calibration relationships	-	-
ISO 8573-1	-	Compressed air - Part 1: Contaminants and purity classes	-	-

Publication	Year	Title	EN/HD	Year
ISO 8756	-	Air quality; handling of temperature, pressure and humidity data	-	-
ISO 12185	-	Crude petroleum and petroleum products - Determination of density - Oscillating U-tube method	EN ISO 12185	-

IEC 62282-7-2

Edition 1.0 2021-05

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Fuel cell technologies –
Part 7-2: Test methods – Single cell and stack performance tests for solid oxide fuel cells (SOFCs)

IEC 62282-7-2:2021-05(en)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

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INTERNATIONAL STANDARD

Fuel cell technologies –
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FUEL CELL TECHNOLOGIES –

Part 7-2: Test methods – Single cell and stack performance tests for solid oxide fuel cells (SOFCs)

FOREWORD

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IEC 62282-7-2 has been prepared by IEC technical committee 105: Fuel cell technologies. It is an International Standard.

This first edition cancels and replaces IEC TS 62282-7-2 published in 2014.

This edition includes the following significant technical changes with respect to IEC TS 62282-7-2:2014:

a) users can substitute selected test methods of this document with equivalent test methods of IEC 62282-8-101 for solid oxide cell (SOC) operation for energy storage purposes, operated in reverse or reversible mode;
b) terms and definitions are aligned with the corresponding terms and definitions in IEC 62282-8-101;
c) symbols are aligned with the corresponding symbols in IEC 62282-8-101.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
105/847/FDIS	105/851/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 62282 series, published under the general title *Fuel cell technologies*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

INTRODUCTION

This part of IEC 62282 specifies test methods for a single cell and stack (denoted as "cell/stack" hereafter) that is required in power generation systems using solid oxide fuel cells (SOFCs).

SOFCs have a broad range of geometry and size. As such, in general, peripherals like current collectors and gas manifolds are unique to each cell or stack and are often incorporated into a cell or stack to form one integrated unit. In addition, they tend to have a significant effect on the power generation characteristics of the cell or stack. This document therefore introduces as its subject "cell/stack assembly units", which are defined as those units containing not only a cell or stack but also peripherals.