

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

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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
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(SOFC)
(IEC 62282-7-2:2021)

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-06-25

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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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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	-	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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	-

INTERNATIONAL STANDARD

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



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INTERNATIONAL STANDARD

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 27.070

ISBN 978-2-8322-9805-3

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms, definitions and symbols.....	8
3.1 Terms and definitions.....	8
3.2 Symbols.....	10
4 General safety conditions	11
5 Cell/stack assembly unit	11
6 Testing system	12
6.1 Subsystems in testing system	12
6.2 Maximum variation in control items of testing system	13
7 Instruments and measurement methods	14
7.1 General.....	14
7.2 Instrument uncertainty	14
7.3 Anode gas	14
7.4 Cathode gas	17
7.5 Output voltage	18
7.6 Output current.....	18
7.7 Cell/stack assembly unit temperature.....	18
7.8 Mechanical load.....	18
7.9 Total impedance	18
7.10 Ambient conditions.....	19
8 Test preparation	19
8.1 General.....	19
8.2 Standard test conditions and test range	19
8.3 Components and impurities of anode gas and cathode gas	20
8.4 Basis of the test procedure	20
8.5 Confirmation of aging conditions of unit	20
8.6 Confirmation of criteria of stable state.....	20
8.7 Data acquisition method.....	20
9 Test procedure	20
9.1 Set-up.....	20
9.2 Initial conditioning.....	21
9.3 Shut-down	21
10 Performance test	21
10.1 Rated power test.....	21
10.2 Current-voltage characteristics test.....	22
10.3 Effective fuel utilization dependency test	23
10.4 Long term durability test	24
10.5 Thermal cycling durability test.....	25
10.6 Internal reforming performance test	26
10.7 Resistance components identification test.....	27
11 Test report.....	28
11.1 General.....	28

11.2	Report items	28
11.3	Test unit data description	29
11.4	Test conditions description	29
11.5	Test data description	29
11.6	Uncertainty evaluation	29
Annex A (informative)	Example of cell assembly unit	30
Annex B (informative)	Calculation of effective fuel utilization	31
B.1	General	31
B.2	Calculation method	31
B.3	Calculation examples	32
Annex C (informative)	Calculation of effective oxygen utilization	34
C.1	General	34
C.2	Calculation method	34
C.3	Calculation example	35
Annex D (informative)	Maximum width of the voltage hysteresis in I - V characteristics test ...	36
Annex E (informative)	Current-voltage characteristics test under constant effective fuel utilization	37
Annex F (informative)	Test report (template)	38
F.1	Overview	38
F.2	General information	38
F.3	Test unit data description	38
F.4	Test conditions	39
F.5	Rated power test	39
F.6	Current-voltage characteristics test	39
F.7	Effective fuel utilization dependency test	40
F.8	Long-term durability test	41
F.9	Thermal cycling durability test	42
F.10	Internal reforming performance test	42
F.11	Resistance components identification test	43
Annex G (informative)	Method for determining instrument uncertainty	44
Bibliography	45
Figure 1	– Testing system	12
Figure 2	– Typical diagram of complex impedance plot for SOFC	28
Figure A.1	– Example of cell assembly unit	30
Figure D.1	– Voltage hysteresis at a given sweep rate in I - V characteristics test	36
Figure E.1	– Example of the record in current-voltage characteristics test under constant effective fuel utilization	37
Table 1	– Symbols	10
Table B.1	– n_j for representative fuels	32
Table B.2	– Anode gas composition, flow rate of each fuel component q_j , and $n_j q_j$	32
Table C.1	– Cathode gas composition, q_{O_2} , and I_{theory}	35

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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.

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- 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.