ICS 29.040 SLOVENSKÁ TECHNICKÁ NORMA Jún 2025

STN	**Izolačné kvapaliny Stanovenie prierazného napätia pri sieťovej frekvencii Skúšobná metóda**	**STN EN IEC 60156** 34 6432

Insulating liquids - Determination of the breakdown voltage at power frequency - Test method

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/25

Obsahuje: EN IEC 60156:2025, IEC 60156:2025

Oznámením tejto normy sa od 31.03.2028 ruší
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60156

March 2025

ICS 29.040

Supersedes EN 60156:1995

English Version

Insulating liquids - Determination of the breakdown voltage at power frequency - Test method (IEC 60156:2025)

Isolants liquides - Détermination de la tension de claquage à fréquence industrielle - Méthode d'essai (IEC 60156:2025)

Isolierflüssigkeiten - Bestimmung der Durchschlagspannung bei Netzfrequenz - Prüfverfahren (IEC 60156:2025)

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

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

Ref. No. EN IEC 60156:2025 E

European foreword

The text of document 10/1241/FDIS, future edition 4 of IEC 60156, prepared by TC 10 "Fluids for electrotechnical applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60156:2025.

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) 2026-03-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2028-03-31

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The text of the International Standard IEC 60156:2025 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 standard indicated:

IEC 60060-3	NOTE	Approved as EN 60060-3
IEC 60052:2002	NOTE	Approved as EN 60052:2002 (not modified)
IEC 60060-2:2010	NOTE	Approved as EN 60060-2:2011 (not modified)
ISO 21920-2:2021	NOTE	Approved as EN ISO 21920-2:2022 (not modified)
IEC 60296	NOTE	Approved as EN IEC 60296
IEC 60422	NOTE	Approved as EN IEC 60422

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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60475	-	Method of sampling insulating liquids	EN IEC 60475	-

IEC 60156

Edition 4.0 2025-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Insulating liquids – Determination of the breakdown voltage at power frequency – Test method

Isolants liquides – Détermination de la tension de claquage à fréquence industrielle – Méthode d'essai

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INSULATING LIQUIDS – DETERMINATION OF THE BREAKDOWN VOLTAGE AT POWER FREQUENCY – TEST METHOD

FOREWORD

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IEC 60156 has been prepared by IEC technical committee 10: Fluids for electrotechnical applications. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2018. This edition constitutes a technical revision.

This edition constitutes a technical revision and, mainly, confirms the content of the previous edition even if some advances are included. The test method has not been changed for practical reasons, due to the very large number of instrumentations disseminated around the world.

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

Draft	Report on voting
10/1241/FDIS	10/1256/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/publications.

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, or
- revised.

INTRODUCTION

As normally applied, breakdown voltage of insulating liquids is not a basic material property but an empirical test procedure intended to indicate the presence of contaminants such as water and solid suspended matter and the advisability of carrying out drying and filtration treatment.

The AC breakdown voltage value of insulating liquids strongly depends on the particular set of conditions used in its measurement. Therefore, standardized testing procedures and equipment are essential for the unambiguous interpretation of test results.

The method described in this document applies to either acceptance tests on new deliveries of insulating liquids or testing of treated liquids prior to or during filling into electrical equipment, or to the monitoring and maintenance of insulating liquid-filled apparatus in service. It specifies rigorous sample-handling procedures and temperature control that should be adhered to when certified results are required. For routine tests, especially in the field, less stringent procedures may be practicable, and it is the responsibility of the user to determine their effect on the results.

Annex A describes, for comparison, an alternative test method which could be introduced in the future. Annex B describes special test methods, using cells which may include low volume samples. Annex C describes a reference material for a performance test and check according to IEC 60060-3 [1][1].

[1] Numbers in square brackets refer to the Bibliography.

INSULATING LIQUIDS – DETERMINATION OF THE BREAKDOWN VOLTAGE AT POWER FREQUENCY – TEST METHOD

1 Scope

This document specifies the method for determining the dielectric breakdown voltage of insulating liquids at power frequency. The test procedure is performed in a specified apparatus, where the oil sample is subjected to an increasing AC electrical field until breakdown occurs. The method applies to all types of insulating liquids of nominal viscosity up to 350 mm^2/s at 40 °C. It is appropriate both for acceptance testing on unused liquids at the time of their delivery and for establishing the condition of samples taken in monitoring and maintenance of equipment.

2 Normative references

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.

IEC 60475, *Method of sampling insulating liquids*