Mineral oil-filled electrical equipment in service - Guidance on the interpretation of dissolved and free gases analysis

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NATIONAL FOREWORD

See Eesti standard EVS-EN 60599:2016 sisaldab Euroopa standardi EN 60599:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 60599:2016 consists of the English text of the European standard EN 60599:2016.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.01.2016.	Date of Availability of the European standard is 15.01.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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

ICS 17.220.99, 29.040.10, 29.180

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60599

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Supersedes EN 60599:1999

English Version

Mineral oil-filled electrical equipment in service - Guidance on the interpretation of dissolved and free gases analysis (IEC 60599:2015)

Matériels électriques remplis d'huile minérale en service - Lignes directrices pour l'interprétation de l'analyse des gaz dissous et des gaz libres (IEC 60599:2015)

In Betrieb befindliche, mit Mineralöl befüllte elektrische Geräte - Leitfaden zur Interpretation der Analyse gelöster und freier Gase (IEC 60599:2015)

This European Standard was approved by CENELEC on 2015-10-21. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 European Standard 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.

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

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European foreword

The text of document 10/967/FDIS, future edition 3 of IEC 60599, prepared by IEC/TC 10 "Fluids for electrotechnical applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60599:2016.

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) 2016-07-21
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-10-21

This document supersedes EN 60599:1999.

EN 60599:2016 includes the following significant technical changes with respect to EN 60599:1999:

a) revision of 5.5, 6.1, 7, 8, 9, 10, A.2.6, A.3, A.7;

b) addition of new subclause 4.3;

c) expansion of the Bibliography;

d) revision of Figure 1;

e) addition of Figure B.4.

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 60599:2015 was approved by CENELEC as a European Standard without any modification.

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 1 When 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 60050-191	1990	International Electrotechnical Vocabulary - Chapter 191: Dependability and quality of service	-	-
IEC 60050-192	2015	International electrotechnical vocabulary - Part 192: Dependability	-	-
IEC 60050-212	2010	International Electrotechnical Vocabulary - Part-212: Electrical insulating solids, liquids and gases	-	-
IEC 60050-604	1987	International Electrotechnical Vocabulary - Chapter 604: Generation, transmission and distribution of electricity - Operation	-	-
IEC 60475	-	Method of sampling insulating liquids	EN 60475	-
IEC 60567	2011	Oil-filled electrical equipment - Sampling of gases and analysis of free and dissolved gases - Guidance	EN 60567	2011
IEC 61198	-	Mineral insulating oils - Methods for the determination of 2-furfural and related compounds	EN 61198	-

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INTRODUCTION

Dissolved and free gas analysis (DGA) is one of the most widely used diagnostic tools for detecting and evaluating faults in electrical equipment filled with insulating liquid. However, interpretation of DGA results is often complex and should always be done with care, involving experienced insulation maintenance personnel.

This International Standard gives information for facilitating this interpretation. The first edition, published in 1978, has served the industry well, but had its limitations, such as the absence of a diagnosis in some cases, the absence of concentration levels and the fact that it was based mainly on experience gained from power transformers. The second edition attempted to address some of these shortcomings. Interpretation schemes were based on observations made after inspection of a large number of faulty oil-filled equipment in service and concentrations levels deduced from analyses collected worldwide.