

Method of sampling insulating liquids

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NATIONAL FOREWORD

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Method of sampling insulating liquids
(IEC 60475:2011)

Méthode d'échantillonnage des liquides
isolants
(CEI 60475:2011)

Verfahren zur Probennahme von
Isolierflüssigkeiten
(IEC 60475:2011)

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CENELEC

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

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Foreword

The text of document 10/848/FDIS, future edition 2 of IEC 60475, prepared by IEC/TC 10 "Fluids for electrotechnical applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60475:2011.

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) 2012-08-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2014-11-24

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Endorsement notice

The text of the International Standard IEC 60475:2011 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 referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60567	2011	Oil-filled electrical equipment - Sampling of gases and analysis of free and dissolved gases - Guidance	EN 60567	2011
IEC 60970	-	Insulating liquids - Methods for counting and sizing particles	EN 60970	-

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INTRODUCTION

General caution, health, safety and environmental protection

This International Standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user of the standard to establish appropriate health and safety practices and determine the applicability of regulatory limitations prior to use.

The insulating oils which are the subject of this standard should be handled with due regard to personal hygiene. Direct contact with the eyes may cause irritation. In the case of eye contact, irrigation with copious quantities of clean running water should be carried out and medical advice sought. Some of the tests specified in this standard involve the use of processes that could lead to a hazardous situation. Attention is drawn to the relevant standard for guidance.

Environment

This standard is applicable to mineral oils and non-mineral oils, chemicals and used sample containers.

Attention is drawn to the fact that, some mineral oils in service may still be contaminated to some degree by PCBs. If this is the case, safety countermeasures should be taken to avoid risks to workers, the public and the environment during the life of the equipment, by strictly controlling spills and emissions. Disposal or decontamination of these oils should be carried out strictly according to local regulations. Every precaution should be taken to prevent release of mineral oil and non-mineral oil into the environment.

METHOD OF SAMPLING INSULATING LIQUIDS

1 Scope

This International Standard is applicable to the procedure to be used for insulating liquids in delivery containers and in electrical equipment such as power and instrument transformers, reactors, bushings, oil-filled cables, oil-filled tank-type capacitors, switchgear and load tap changers (LTCs).

This standard applies to liquids the viscosity of which at the sampling temperature is less than 1 500 mm²/s (or cSt). It applies to mineral oils and non-mineral oils (such as synthetic esters, natural esters, vegetable oils or silicones).

2 Normative references

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.

IEC 60567:2011, *Oil-filled electrical equipment – Sampling of gases and analysis of free and dissolved gases – Guidance*

IEC 60970, *Insulating liquids – Methods for counting and sizing particles*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

delivery containers

containers such as drums, rail tankers, road tankers or flexible plastic bags used to store, transport and deliver batches of oil

3.2

electrical equipment

equipment filled with insulating oil such as power and instrument transformers, reactors, bushings, oil-filled cables, oil-filled tank-type capacitors, switchgear and load tap changers (LTCs)

3.3

sampling equipment

equipment used for sampling oil from delivery containers (e.g. sampling probes, such as dippers or siphons) and from electrical equipment (e.g. connecting tubing and drain valve adapters)

NOTE This also includes sample containers, waste oil containers and other accessories.

3.4

sample containers

containers such as syringes, bottles, ampoules or other devices used to store and transport samples of oil for analysis