AS 1767.2.2—2008
IEC 60247, Ed. 3.0 (2004)
Reconfirmed 2019

Australian Standard®

Insulating liquids

Method 2.2: Test methods—Measurement of relative permittivity, dielectric dissipation factor (tan δ) and d.c. resistivity

This Australian Standard® was prepared by Committee EL-008, Power Transformers. It was approved on behalf of the Council of Standards Australia on 7 August 2008.
This Standard was published on 30 October 2008.

The following are represented on Committee EL-008:

- Australasian Railway Association
- Australian Chamber of Commerce and Industry
- Australian Greenhouse Office, Department of the Environment, Water, Heritage and the Arts
- Australian Industry Group
- Australian Institute of Petroleum Ltd
- Electricity Engineers Association, New Zealand
- Energy Efficiency and Conservation Authority, New Zealand
- Energy Networks Association
- Engineers Australia
- Testing Interests (Australia)

This Standard was issued in draft form for comment as DR 06552.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 1767.2.2—2008
Insulating liquids
Method 2.2: Test methods—Measurement of relative permittivity, dielectric dissipation factor (tan δ) and d.c. resistivity

RECONFIRMATION NOTICE

Technical Committee EL-008 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 14 November 2018.

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NOTES

Australian Standard®

Insulating liquids

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First published as AS 1767.2.2—2008.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 8933 1

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-008, Power Transformers. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide methods of determining the dielectric dissipation factor (tan δ), relative permittivity and d.c. resistivity of single phase, insulating liquid materials at the test temperature. The methods are primarily intended for making reference tests on unused liquids but can also be applied to liquids in service in transformers, cables and other electrical apparatus. Simplified procedures are also included for routine testing.

This Standard is identical with, and has been reproduced from, IEC 60247, Ed. 3.0 (2004), *Insulating liquids—Measurement of relative permittivity, dielectric dissipation factor (tan δ) and d.c. resistivity*. An explanatory Note has been added to Clause 1 (the Scope) and an editorial correction has been made to Clause 5.3. The Note in the Scope is identified by shading (example).

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number appears only on the cover and title page, while the International Standard number appears only on the cover.

(b) In the source text, ‘this International Standard’ should read ‘this Australian Standard’.

(c) A full point should be substituted for a comma as a decimal marker.

The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

CONTENTS

INTRODUCTION

Health and safety

General caution. 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.

Environment

This standard gives rise to insulating liquids, chemicals, used sample containers and oil contaminated solids. The disposal of these items should be carried out according to local regulations with regard to their impact on the environment. Every precaution should be taken to prevent the release into the environment of these liquids.

STANDARDS AUSTRALIA

Australian Standard

Insulating liquids
Method 2.2: Test methods—Measurement of relative permittivity, dielectric dissipation factor (tan δ) and d.c. resistivity

1 Scope

This International standard describes methods for the determination of the dielectric dissipation factor (tan δ), relative permittivity and d.c. resistivity of any insulating liquid material at the test temperature.

The methods are primarily intended for making reference tests on unused liquids. They can also be applied to liquids in service in transformers, cables and other electrical apparatus. However the method is applicable to a single phase liquid only. When it is desired to make routine determinations, simplified procedures, as described in Annex C, may be adopted.

With insulating liquids other than hydrocarbons, alternative cleaning procedures may be required.

NOTE Referee test methods may be used provided they meet the required measurement precision.

2 Normative references

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.

References to International Standards that are struck through in this clause are replaced by references to the Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is identified as such.

IEC 60093, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials*

IEC 60250, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths*

~~IEC 60475, *Method of sampling liquid dielectrics*~~

AS 1767.2.3 *Insulating liquids*, Part 2: *Test methods*, Method 2.3: *Method of sampling liquid dielectrics*

IEC 61620, *Insulating liquids – Determination of the dielectric dissipation factor by measurement of the conductance and capacitance – Test method*

3 Terms and definitions

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

