AS 1767.2.7—1999
IEC 61619:1997

Australian Standard™

Insulating liquids

Part 2: Test methods
Method 2.7: Determination of PCB contamination in insulating liquids by capillary column gas chromatography—Identification of congeners

[IEC title: Insulating liquids—Contamination by polychlorinated biphenyls (PCBs)—Method of determination by capillary column gas chromatography]

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Australasian Railway Association

Australian Chamber of Commerce and Industry

Australian Electrical and Electronic Manufacturers Association

Australian Institute of Petroleum

Electricity Supply Association of Australia

Electricity Supply Engineers Association

Institution of Engineers Australia

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PREFACE

This Standard was prepared by the Standards Australia Committee EL/8, Power Transformers.

This Standard is technically equivalent to, and has been reproduced from, IEC 61619:1997, *Insulating liquids—Contamination by polychlorinated biphenyls (PCBs)—Method of determination by capillary column gas chromatography*.

In January 1997, IEC commenced numbering its Standards from 60000 by adding 60000 to the number of each existing Standard. This coordinates IEC numbering with ISO numbering. During the transition period an IEC Standard might be identified by its new number or its old number (for example, IEC 60050 or IEC 50).

Appendix ZZ lists variations to IEC 61619:1997 for application in Australia. For the purposes of this Standard, the IEC text is amended, supplemented or replaced as set out in Appendix ZZ. These variations are indicated throughout this Standard by a marginal bar located adjacent to the affected text.

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

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title pages.

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

(c) A full point should be substituted for a comma when referring to a decimal marker.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex or appendix to which they apply. A ‘normative’ annex or appendix is an integral part of a Standard, whereas an ‘informative’ annex or appendix is only for information and guidance.

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1 Scope and object

This International Standard specifies a method for the determination of polychlorinated biphenyl (PCB) concentration in non-halogenated insulating liquids by high-resolution capillary column gas chromatography using an electron capture detector (ECD).

The method gives the total PCB content and is especially useful when a detailed analysis of PCB congeners is necessary. Other methods, such as IEC 60997, may be used when a less detailed analysis is acceptable.

The method is applicable to unused, reclaimed (including dechlorinated and chemically and/or physically treated), or used insulating liquids contaminated by PCBs.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this normative document. At the time of publication, the edition indicated was valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative document indicated below. Members of IEC and ISO maintain registers of current valid International Standards.

IEC 60475: 1974, *Method of sampling liquid dielectrics*

3 Definitions

For the purposes of the International Standard, the following definitions apply:

3.1 *Polychlorinated biphenyl (PCB)*

A biphenyl substituted by one to ten chlorine atoms.

NOTE – For legal purposes, congeners with one, two or ten chlorine atoms may be excluded from this definition.

3.2 *Congener*

All the chlorine derivatives of biphenyl, irrespective of the number of chlorine atoms, are termed congeners.

NOTE – There are 209 possible PCB congeners.These are listed in table B.1. The congener numbers (IUPAC)* are for easy identification; they do not represent the order of chromatographic elution.

* International Union of Pure and Applied Chemistry.