Insulating liquids – Specifications for unused liquids based on synthetic aromatic hydrocarbons
Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Final Draft International Standard (FDIS) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.

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TITLE:
Insulating liquids – Specifications for unused liquids based on synthetic aromatic hydrocarbons

PROPOSED STABILITY DATE: 2029

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IEC 60867 has been prepared by IEC technical committee 10: Fluids for electrotechnical applications. It is an International Standard.

This third edition cancels a replaces the second edition published in 1993. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) The Scope has been changed from applications in electrical equipment to applications limited to cables and capacitors.

b) IEC 62021-1, IEC 62021-2 and IEC 62021-3 are all acceptable for synthetic aromatic hydrocarbons and references to individual parts have been replaced by references to the IEC 62021 series.
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The text of this International Standard is based on the following documents:

<table>
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<th>Draft</th>
<th>Report on voting</th>
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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/standardsdev/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- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.
INTRODUCTION

WARNING – Health and safety

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

The synthetic aromatic hydrocarbon insulating liquids which are the subject of this document should be handled with due regard to personal hygiene. Direct contact with the eyes can 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 document involve the use of processes that could lead to a hazardous situation. Attention is drawn to the relevant standard for guidance.

WARNING – Environment

This document is applicable to synthetic aromatic hydrocarbon insulating liquids, chemicals and used sample containers. The disposal of these items can be subject to regulatory requirements with regard to their impact on the environment. Every precaution should be taken to prevent release of insulating liquids into the environment.
1 Scope

This document covers specifications and test methods for unused synthetic aromatic hydrocarbons intended for use as insulating liquid in cables and capacitors.

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 60156, Insulating liquids – Determination of the breakdown voltage at power frequency – Test method

IEC 60247, Insulating liquids – Measurement of relative permittivity, dielectric dissipation factor (tanδ) and d.c. resistivity

IEC 60475, Method of sampling insulating liquids

IEC 60628, Gassing of insulating liquids under electrical stress and ionization

IEC 60666, Detection and determination of specified additives in mineral insulating oils

IEC 60814, Insulating liquids – Oil-impregnated paper and pressboard – Determination of water by automatic coulometric Karl Fischer titration

IEC 61619, Insulating liquids – Contamination by polychlorinated biphenyls (PCBs) – Method of determination by capillary column gas chromatography

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

IEC 62021 (all parts), Insulating liquids – Determination of acidity

IEC 62535, Insulating liquids – Test method for detection potentially corrosive sulphur in used and unused insulating oil

ISO 2592, Petroleum and related products – Determination of flash point – Cleveland open cup method (PMOC)

ISO 3016, Petroleum and related products from natural or synthetic sources – Determination of pour point

ISO 3104, Petroleum products – Transparent and opaque liquids – Determination of kinematic viscosity and calculation of dynamic viscosity

ISO 3675, Crude petroleum and liquid petroleum products – Laboratory determination of density – Hydrometer method
ISO 9562, *Water quality – Determination of adsorbable organically bound halogens (AOX)*

ISO 12185, *Crude petroleum and petroleum products – Determination of density – Oscillating U-tube method*

ASTM D1275, *Standard test method for corrosive sulfur in electrical insulating liquids*


DIN 51353, *Testing of insulating oils; detection of corrosive sulfur; Silver strip test*