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**Electrical insulating materials – Thermal endurance properties –
Part 6: Determination of thermal endurance indices (TI and RTI) of an insulating
material using the fixed time frame method**

**Matériaux isolants électriques – Propriétés d'endurance thermique –
Partie 6: Détermination des indices d'endurance thermique (IT et ITR) d'un
matériau isolant en utilisant la méthode de trame de durées fixes**



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.220.99; 29.035.01

ISBN 978-2-8322-6022-7

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CONTENTS

| | |
|---|----|
| FOREWORD | 5 |
| 1 Scope | 7 |
| 2 Normative references | 7 |
| 3 Terms, definitions, symbols and abbreviated terms | 8 |
| 3.1 Terms and definitions | 8 |
| 3.2 Symbols and abbreviated terms | 11 |
| 4 FTFM protocol | 12 |
| 4.1 Principles of FTFM protocol | 12 |
| 4.2 Objective of FTFM protocol | 12 |
| 5 TI determination | 13 |
| 5.1 Ageing procedures | 13 |
| 5.2 Ageing times and temperatures | 13 |
| 5.3 Test specimens | 13 |
| 5.3.1 Preparation | 13 |
| 5.3.2 Number of specimens | 14 |
| 5.4 Diagnostic tests | 14 |
| 5.5 Selection of end-points | 15 |
| 5.6 Establishment of initial property value | 15 |
| 5.7 Ageing conditions | 15 |
| 5.7.1 Ageing ovens | 15 |
| 5.7.2 Environmental conditions | 15 |
| 5.7.3 Conditions for property measurement | 16 |
| 5.8 Procedure for ageing | 16 |
| 6 Calculation procedures | 16 |
| 6.1 General principles | 16 |
| 6.1.1 Thermal endurance calculation | 16 |
| 6.1.2 Property value – equivalent temperature transform (Calculation of hypothetical ageing temperature derived from the value of a property) | 17 |
| 6.2 Precision of calculations | 17 |
| 6.3 Derivation of temperatures equivalent to property values | 17 |
| 6.3.1 General | 17 |
| 6.3.2 Preliminary calculations | 17 |
| 6.3.3 Regression calculations (property on temperature) | 18 |
| 6.3.4 Linearity test | 20 |
| 6.3.5 Estimation of end-point temperatures equivalent to property values | 21 |
| 6.4 Regression analysis (temperature on time) | 21 |
| 6.4.1 General | 21 |
| 6.4.2 Group means and variances | 21 |
| 6.4.3 General means and variances | 21 |
| 6.4.4 Regression | 22 |
| 6.5 Statistical tests | 23 |
| 6.5.1 Variance equality test | 23 |
| 6.5.2 Linearity test (<i>F</i> -test) | 24 |
| 6.5.3 Estimates of <i>x</i> and <i>y</i> and their confidence limits | 24 |
| 6.6 Thermal endurance graph | 26 |
| 7 Calculation and requirements for results | 26 |

| | | |
|-----------------------|--|----|
| 7.1 | Calculation of thermal endurance characteristics | 26 |
| 7.2 | Reporting of results..... | 27 |
| 7.2.1 | Summary of statistical tests and reporting | 27 |
| 7.2.2 | Report format | 27 |
| 8 | Report | 27 |
| 9 | RTI determination | 28 |
| 10 | Additional symbols..... | 28 |
| 11 | Experimental procedures | 29 |
| 11.1 | Selection of reference EIM | 29 |
| 11.2 | Selection of diagnostic test for extent of ageing | 29 |
| 11.3 | Ageing procedures | 29 |
| 12 | Calculation procedures | 29 |
| 12.1 | General principles..... | 29 |
| 12.2 | Input data | 29 |
| 12.3 | RTI | 30 |
| 12.4 | Confidence limits | 31 |
| 12.5 | Extrapolation..... | 32 |
| 13 | Results and report | 33 |
| 13.1 | Results of statistical and numerical tests..... | 33 |
| 13.2 | Result | 33 |
| 13.3 | Report..... | 33 |
| Annex A (normative) | Decision flow chart..... | 34 |
| Annex B (normative) | Decision table | 36 |
| Annex C (informative) | Statistical tables..... | 37 |
| Annex D (informative) | Suggested ageing times and temperatures..... | 41 |
| D.1 | TI determination..... | 41 |
| D.1.1 | Correlation time (TI) = 20 000 h..... | 41 |
| D.1.2 | Other correlation times for TI calculation (see 12.3)..... | 41 |
| D.2 | RTI determination | 42 |
| Annex E (informative) | Figures..... | 43 |
| Annex F (normative) | Statistical significance of the difference between two regression estimates..... | 46 |
| Annex G (informative) | Computer program | 47 |
| G.1 | General..... | 47 |
| G.1.1 | Overview | 47 |
| G.1.2 | Convenience program execution..... | 48 |
| G.2.1 | Content of file Control6.ftd..... | 50 |
| G.2.2 | Report | 52 |
| G.2.3 | Thermal endurance graph..... | 54 |
| Figure A.1 | – Decision flow chart | 35 |
| Figure E.1 | – Property-temperature graph with regression line | 43 |
| Figure E.2 | – Thermal endurance graph | 43 |
| Figure E.3 | – Ageing times and temperatures in relation to thermal endurance graph..... | 44 |
| Figure E.4 | – Ageing times and temperatures in relation to thermal endurance graph..... | 44 |
| Figure E.5 | – Ageing times and temperatures in relation to thermal endurance graph..... | 45 |

Figure G.1 – Shortcut property dialog for program launch 49

Figure G.2 – Thermal endurance graph..... 54

Table 1 – Intermediate data values 30

Table B.1 – Decision table 36

Table C.1 – χ^2 -function..... 37

Table C.2 – t -function 37

Table C.3 – F -function, $P = 0,05$ 38

Table C.4 – F -function, $P = 0,005$ 39

Table D.1 – Ageing temperatures and times..... 4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL INSULATING MATERIALS –
THERMAL ENDURANCE PROPERTIES –****Part 6: Determination of thermal endurance indices (TI and RTI)
of an insulating material using the fixed time frame method**

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IEC 60216-6 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems. It is an International Standard.

This second edition cancels and replaces the first edition published in 2003. This edition constitutes a technical revision.

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

- a) clarification of definition of index properties vs. endurance properties;
- b) complete rework of Annex G and the corresponding program.

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|--------------|------------------|
| 112/583/FDIS | 112/589/RVD |

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.

A list of all parts in the IEC 60216 series, published under the general title *Electrical insulating materials – Thermal endurance properties*, can be found on the IEC website.

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

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ELECTRICAL INSULATING MATERIALS – THERMAL ENDURANCE PROPERTIES –

Part 6: Determination of thermal endurance indices (TI and RTI) of an insulating material using the fixed time frame method

1 Scope

This part of IEC 60216 specifies the experimental and calculation procedures for deriving the thermal endurance characteristics, temperature index (TI) and relative temperature index (RTI) of an electrical insulating material (EIM) using the “fixed time frame method (FTFM)”.

In this protocol, the ageing takes place for a small number of fixed times, using the appropriate number of ageing temperatures throughout each time, the properties of the specimens being measured at the end of the relevant time interval. This differs from the procedure of IEC 60216-1, where ageing is conducted at a small number of fixed temperatures, property measurement taking place after ageing times dependent on the progress of ageing.

The diagnostic tests employed in the fixed time frame method are restricted to destructive tests. The method has not yet been applied to non-destructive or partial test procedures.

Both the TI and the RTI determined according to the FTFM protocol are derived from experimental data obtained in accordance with the instructions of IEC 60216-1 and IEC 60216-2 as modified in this part of IEC 60216. The calculation procedures and statistical tests are modified from those of IEC 60216-3 and IEC 60216-5.

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 60212, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60216-1:2023, *Electrical insulating materials – Thermal endurance properties – Part 1: Ageing procedures and evaluation of test results*

IEC 60216-2, *Electrical insulating materials – Thermal endurance properties – Part 2: Determination of thermal endurance properties of electrical insulating materials – Choice of test criteria*

IEC 60216-3:2021, *Electrical insulating materials – Thermal endurance properties – Part 3: Instructions for calculating thermal endurance characteristics*

IEC 60216-4-1, *Electrical insulating materials – Thermal endurance properties – Part 4-1: Ageing ovens – Single-chamber ovens*

IEC 60216-4-2, *Electrical insulating materials – Thermal endurance properties – Part 4-2: Ageing ovens – Precision ovens for use up to 300 °C*