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Test procedure for the determination of the temperature index of enamelled and tape wrapped winding wires

Méthode d'essai pour la détermination de l'indice de température des fils de bobinage émaillés et enveloppés de ruban



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CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Summary of procedure	7
5 Test specimens	7
5.1 Preparation	7
5.1.1 Enamelled non-tape wrapped round wire	7
5.1.2 Tape wrapped round wire and enamelled or tape wrapped rectangular wire	10
5.2 Varnish impregnation	12
5.3 Notes on number of test specimens	13
5.4 Specimen holder	13
5.4.1 For specimens according to 5.1.1	13
5.4.2 For specimens according to 5.1.2	13
6 Temperature exposure	14
7 Test voltage and its application	15
8 Calculations	16
8.1 Specimen failure time	16
8.2 Time to failure	16
8.3 Linearity of data	16
8.4 Calculating and plotting thermal endurance and temperature index	17
9 Report	18
Annex A (normative) Method for calculation of the regression line	19
Annex B (normative) Correlation coefficient	24
Bibliography	25
Figure 1 – Device used to form enamelled round wire test specimen	8
Figure 2 – Spacer	8
Figure 3 – Twist forming jig	9
Figure 4 – Test specimen set up in forming jig	9
Figure 5 – Test specimen formed with loop cut	10
Figure 6 – Jig for bending large magnet wire, dielectric test specimen	11
Figure 7 – Forming jig and test specimen	12
Figure 8 – Specimen holder	13
Figure 9 – Thermal endurance graph – Temperature index	17
Figure A.1 – Plot of regression line based on sample calculation (Table A.2)	23
Table 1 – Force and number of twists for specimens	8
Table 2 – Proof voltage for round enamelled wire	10
Table 3 – Recommended exposure times in days per cycle	14
Table 4 – Proof voltage for tape-wrapped round and for enamelled or tape-wrapped rectangular wire	15

Table A.1 – Commonly used test temperatures in degrees Celsius and the corresponding kelvins with its reciprocal and reciprocal squared values..... 21

Table A.2 – Sample calculation..... 22

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

TEST PROCEDURE FOR THE DETERMINATION OF THE TEMPERATURE INDEX OF ENAMELLED AND TAPE WRAPPED WINDING WIRES

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International Standard IEC 60172 has been prepared by IEC Technical Committee 55: Winding wires.

This fifth edition cancels and replaces the fourth edition published in 2015. This edition constitutes a technical revision.

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

- revision of 3.1, definition of thermal index;
- revision of 3.3, time to failure;
- revisions to 5.1.1 for clarity and to reduce the range wire size range to which the test applies;
- revisions to 5.1.2 for tape wrapped round and enamelled or tape wrapped rectangular wire for clarity;
- revision to Clause 9 to add the correlation coefficient, r to the report.

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

FDIS	Report on voting
55/1876/FDIS	55/1893/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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TEST PROCEDURE FOR THE DETERMINATION OF THE TEMPERATURE INDEX OF ENAMELLED AND TAPE WRAPPED WINDING WIRES

1 Scope

This International Standard specifies, in accordance with the provisions of IEC 60216-1, a method for evaluating the temperature index of enamelled wire, varnished or unvarnished with an impregnating agent, and of tape wrapped round and rectangular wire, in air at atmospheric pressure by periodically monitoring changes in response to AC proof voltage test. This procedure does not apply to fibre-insulated wire or wire covered with tapes containing inorganic fibres.

NOTE The data obtained according to this test procedure provide the designer and development engineer with information for the selection of winding wire for further evaluation of insulation systems and equipment tests.

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

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

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 temperature index

TI
number which permits comparison of the temperature/time characteristics of an electrical insulating material, or a simple combination of materials, based on the temperature in degrees Celsius which is obtained by extrapolating the Arrhenius plot of life versus temperature to a lifetime of 20 000 h

Note 1 to entry: In case of insulation systems, the temperature index may be derived from known service experience or from a known comparative functional evaluation of an evaluated and established reference insulation system as basis.

[SOURCE: IEC 60050-212:2010, 212-12-11] modified by merging Note 1 into the definition, and to specify a lifetime of 20 000 h.]