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**Electrical insulation systems – Procedures for thermal evaluation –
Part 32: Multifactor evaluation with increased factors during diagnostic testing**

**Systèmes d'isolation électrique – Procédures d'évaluation thermique –
Partie 32: Évaluation multifactorielle avec facteurs augmentés pendant
les essais de diagnostic**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL INSULATION SYSTEMS – PROCEDURES
FOR THERMAL EVALUATION –**
**Part 32: Multifactor evaluation with increased
factors during diagnostic testing**

FOREWORD

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International Standard IEC 61857-32 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems

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

CDV	Report on voting
112/399/CDV	112/425A/RVC

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.

A list of all parts in the IEC 61857 series, published under the general title *Electrical insulation systems – Procedures for thermal evaluation*, 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 "<http://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- withdrawn,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
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INTRODUCTION

Accelerated ageing of an Electrical Insulation System [EIS] is intended to evaluate the thermal classification of the EIS. Many applications need to include the evaluation of other factors in addition to the thermal factor related to the application.

IEC 60505 provides four categories of stresses or ageing factors which influence the performance of products in use under a wide range of operating conditions. In IEC 60505, the factors are presented as Thermal [T], Electrical [E], Environmental [E], and Mechanical [M]. In this part of IEC 61857, Environmental [E] is replaced with Ambient [A] to remove possible confusion of having two factors represented by the same letter. For this document, the factors are presented with Thermal [T], Electrical [E], Ambient [A], and Mechanical [M].

This document provides the structure for evaluation of one or more of the three factors E, A and M by direct comparison to the baseline classification established by T. Without the baseline, any analysis is limited.

While similar, IEC 61857-32 and IEC 61857-33 have different structure and evaluation conditions. In IEC 61857-32, thermal exposure is the only intended ageing factor and additional stresses are only applied during the diagnostic portion of each test cycle. In IEC 61857-33, the stresses are applied continually at elevated temperatures.

ELECTRICAL INSULATION SYSTEMS – PROCEDURES FOR THERMAL EVALUATION –

Part 32: Multifactor evaluation with increased factors during diagnostic testing

1 Scope

This part of the 61857 series is focused on applications where other possible factors need to be incorporated to evaluate any influence on the performance of the electrical insulation system (EIS). Multi-factor evaluation is the most complex type of project to design and conduct. Clear guidelines are needed to give the user of this document a uniform approach and a method to analyse the test results.

This document is for applications where the stresses are some combination of other factors of influence identified in IEC 60505. The multi-factor stresses are applied during the diagnostic portion of each test cycle.

A few examples of other factors of influence or multi-factor stresses are:

- high vibration;
- submersion in oils, water, or solutions;
- voltage higher than the test voltage of the reference EIS;
- decreased cold shock temperature.

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 61857-1, *Electrical insulation systems – Procedures for thermal evaluation – Part 1: General requirements – Low-voltage*

IEC TR 61857-2, *Electrical insulation systems – Procedures for thermal evaluation – Part 2: Selection of the appropriate test method for evaluation and classification of electrical insulation systems*

IEC 61858-2, *Electrical insulation systems – Thermal evaluation of modifications to an established electrical insulation system (EIS) – Part 2: Form-wound EIS*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61857-1 and the following apply.

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

- IEC Electropedia: available at <http://www.electropedia.org>