



# **IEEE Recommended Practice for Thermal Evaluation of Unsealed or Sealed Insulation Systems for AC Electric Machinery Employing Form- Wound Pre-Insulated Stator Coils for Machines Rated 15 000 V and Below**

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**IEEE Power & Energy Society**

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3 Park Avenue  
New York, NY 10016-5997, USA  
13 February 2009

**IEEE Std 1776™-2008**

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# **IEEE Recommended Practice for Thermal Evaluation of Unsealed or Sealed Insulation Systems for AC Electric Machinery Employing Form- Wound Pre-Insulated Stator Coils for Machines Rated 15 000 V and Below**

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**Electric Machinery Committee  
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IEEE Power & Energy Society**

Approved 10 December 2008

**IEEE-SA Standards Board**

Grateful Acknowledgement is made to Seimens for Figure 1 and Figure 2, Eltek International Laboratories, for use of the two photographs illustrated in Annex A, and Teco Westinghouse Motor Company for the two photographs illustrated in Annex A.

**Abstract:** A test procedure (Combination of IEEE Std 275™-1992 and IEEE Std 429™-1994) for comparing two or more insulation systems in accordance with their expected life at rated temperature is outlined. The procedure is limited to insulation systems for alternating-current (ac) electrical machines using form-wound pre-insulated stator coils rated 15 000 V and below.

**Keywords:** ac electric machinery, insulation system, stator coils, thermal evaluation

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The Institute of Electrical and Electronics Engineers, Inc.  
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PDF: ISBN 978-0-7381-5873-0 STD95863  
Print: ISBN 978-0-7381-5874-7 STDPD95863

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## Introduction

This introduction is not part of IEEE Std 1776-2008, IEEE Recommended Practice for Thermal Evaluation of Unsealed or Sealed Insulation Systems for AC Electric Machinery Employing Form-Wound Pre-Insulated Stator Coils for Machines Rated 15 000 V and Below.

This recommended practice is intended to provide an evaluation of the thermal capability of an unsealed or sealed insulation system. Other aging factors; electrical, mechanical, and environmental are also known to be important. Test procedures for evaluating those factors, both individually and in combination with each other, will be pursued by other working groups.

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Dana Arndt  
Ray Bartnikas  
Kevin Becker  
Andrew Brown  
Weijen Chen  
Ian Culbert  
Paul Gaberson  
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Bal K. Gupta  
Gary Heuston  
Richard Huber  
Jeff Hudson  
Aleksandra Jeremic  
Brandy LaBanca  
Lou Little  
David McKinnon

Charles Millet  
Howard Penrose  
Lon Rux  
Meredith Stranges  
Ed Van Vooren  
Roger Wicks  
Joseph Williams  
Hugh Zhu

The following members of the individual balloting committee voted on this recommended practice. Balloters may have voted for approval, disapproval, or abstention.

Gabriele F. D. Alleva  
Anderson Paul  
Michael Bayer  
Thomas Bishop  
William Bloeth  
Andrew Brown  
Weijen Chen  
Roger Daugherty  
Matthew Davis  
John Densley  
Gary L. Donner  
Donald Dunn  
James Dymond  
Gary Engmann  
William Finley  
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Carl Fredericks  
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J. Travis Griffith

Randall Groves  
Bal K. Gupta  
Gary Heuston  
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Richard Hulett  
Innocent Kamwa  
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G. Harold Miller

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Glenn Mottershead  
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Marcie Muzzey  
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Arthur Neubauer  
Michael S. Newman  
Howard Penrose  
Christopher Petrola  
Alvaro Portillo  
Iulian Profir  
Madan Rana  
Gregory Stone  
Meredith Stranges  
S. Thamarasan  
John Vergis  
Kenneth White  
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Chuck Wilson  
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Glenn Parsons

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Chuck Powers  
Narayanan Ramachandran  
Jon Walter Rosdahl  
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Malcolm Thaden  
Howard Wolfman  
Don Wright

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Satish K. Aggarwal, *NRC Representative*  
Michael Janezic, *NIST Representative*

Michelle Turner  
*IEEE Standards Program Manager, Document Development*

Soo H. Kim  
*IEEE Standards Program Manager, Technical Program Development*

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## 1. Overview

### 1.1 Scope

This recommended practice outlines test procedures for comparing two or more unsealed or sealed insulation systems in accordance with their expected life at rated temperature. The procedure is limited to insulation systems for AC electrical machines using form-wound pre-insulated stator coils rated 15 000 V and below.

The intent of this test procedure is to evaluate unsealed insulation systems for use with air cooling under usual (normal) service conditions, or sealed insulation systems for use under severe environmental conditions (where the insulation is exposed to conducting contaminants). This procedure does not cover special requirements, such as those for machines enclosed in gas atmospheres or machines subjected to strong chemicals, metal dust or submersion in liquid, etc.

The procedure includes instructions for testing candidate systems in comparison with known reference systems, of the same type, having a proven record of service experience and interpreting the results of these tests.