

IEEE Recommended Practice for Thermal Evaluation of Insulation Systems for Alternating-Current Electric Machinery Employing Form-Wound Preinsulated Stator Coils for Machines Rated 6900 V and Below

Sponsor
**Electric Machinery Committee
of the
IEEE Power Engineering Society**

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Abstract: A test procedure for comparing two or more insulation systems in accordance with their expected life at rated temperature is described. The procedure is limited to insulation systems for ac electric machines using form-wound preinsulated stator coils and rated 6900 V and below. This procedure is intended to evaluate insulation systems for use in usual service conditions with air cooling. It does not cover such special requirements as machines that are enclosed in gas atmospheres, or that are subjected to strong chemicals, to metal dusts, or to submersion in liquids, etc. The procedure includes instructions for testing candidate systems in comparison with known systems having a proven record of service experience and interpretation of the results.

Keywords: electric machinery, ac; form-wound preinsulated stator coils; insulation systems

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Foreword

(This foreword is not a part of IEEE Std 275-1992, IEEE Recommended Practice for Thermal Evaluation of Insulation Systems for Alternating-Current Electric Machinery Employing Form-Wound Preinsulated Stator Coils for Machines Rated 6900 V and Below.)

This recommended practice is a revision of IEEE Std 275-1981. The revision was initiated by the Insulation (now Materials) Subcommittee of the Rotating (now Electric) Machinery Committee of the IEEE Power Engineering Society. At the time this standard was completed, the P275 Working Group had the following membership:

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1. Introduction

1.1 Scope

This standard outlines a test procedure for *comparing* two or more insulation systems in accordance with their expected life at rated temperature. The procedure is limited to insulation systems for ac electric machines using form-wound preinsulated stator coils and rated 6900 V and below.

It is the intent of this procedure to evaluate insulation systems for use in usual service conditions with air cooling. It does not cover such special requirements as machines that are enclosed in gas atmospheres, or that are subjected to strong chemicals, to metal dusts, or to submersion in liquids, etc.

The procedure includes instructions for testing candidate systems in comparison with known systems having a proven record of service experience and interpretation of the results.

1.2 Purpose

The purpose of this procedure is to classify insulation systems for the machinery within the scope of this standard in accordance with their temperature limits by test, rather than by chemical composition. Data from such tests may be used to establish the temperature classification of new insulation systems before they are service proven.

Service-proven systems shall also be tested according to this test procedure.

1.3 General Conditions

The concepts implemented herein are based on IEEE Std 99-1980 [3].¹

¹The numbers in brackets correspond to those of the references listed in Section 2 of this document.