

IEEE Standard Test Procedure for Evaluation of Systems of Insulation for Dry-Type Specialty and General- Purpose Transformers

Sponsor

**Transformers Committee
of the
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Abstract: A uniform method by which the thermal endurance of electrical insulation systems for dry-type specialty and general-purpose transformers can be compared is established. Covered are insulation systems intended for use in the types of transformers described in NEMA ST 1-1988 and NEMA ST 20-1992.

Keywords: aging, evaluation, dry-type, insulation system, thermal, transformers

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Introduction

(This introduction is not part of IEEE Std 259-1999, IEEE Standard Test Procedure for Evaluation of Systems of Insulation for Dry-Type Specialty and General-Purpose Transformers.)

This standard was developed to provide a test procedure for evaluating the thermal endurance of insulation systems for dry-type specialty and general-purpose transformers covered by NEMA ST 1-1988 and by NEMA ST 20-1992. Generally these dry-type transformers are used with the primary windings connected to secondary distribution circuits of 600 V nominal and below to supply electric power to lighting systems, heating systems, signaling systems, machine tool controls, industrial controls, and other power loads in commercial, institutional, and industrial applications.

The IEEE charged its technical committees with the responsibility for developing test procedures for the thermal evaluation and classification of insulation systems used in electrical equipment. These are to be in general accord with IEEE Std 1-1986. The principal objective is to enable the performance of new and old insulation systems to be compared directly in a practical way and in a reasonable time, and to provide a sound basis for introducing new insulation systems into service.

Experience has shown that the thermal life characteristics of composite insulation systems cannot be reliably inferred solely from information concerning component materials. To assure satisfactory service life, insulation specifications need to be supported by service experience or life tests. Accelerated life tests are being used increasingly to evaluate the many new synthetic insulating materials that are available, thus shortening the period of service experience required before they can be used with confidence. Tests on complete insulation systems, representative of each type of equipment, are necessary to confirm the performance of materials for their specific functions in the equipment.

At the time this standard was completed, the Insulation Requirements for Specialty Transformers Working Group had the following membership:

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