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**Solid electrical insulating materials—
Standard conditions for use prior to
and during the testing**

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal for establishment of Japanese Industrial Standard submitted by the Institute of Electrical Engineers of Japan (IEEJ)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

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Solid electrical insulating materials— Standard conditions for use prior to and during the testing

Introduction

This Japanese Industrial Standard has been prepared based on the second edition of IEC 60212 published in 1971 modifying some of the technical contents to bring the text into harmony with the JIS format and also to add test conditions typically applied in Japan.

The portions underlined with dots and Annex JA in this Standard are the matters not given in the corresponding International Standard. A list of the modifications, with their respective explanations, is given in Annex JB.

1 Scope

This Standard gives standard conditions of exposure time, temperature, atmospheric humidity and liquid immersion for use in testing electrical insulating materials. The range is sufficiently wide to enable suitable conditions to be selected so that either of the primary objects of conditioning can be achieved. These objects are:

- a) To obtain greater reproducibility of test results by:
 - 1) partly counteracting the variations of the properties of the material due to the past history of the test specimens, and
 - 2) ensuring uniformity of conditions during the testing.
- b) To determine the influence of exposure to certain temperatures and humidities, or immersions in liquids, on the properties of a material by subjecting specimens to specified conditions before or during the test or both.

NOTE : The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

IEC 60212 : 1971 *Standard conditions for use prior to and during the testing of solid electrical insulating materials* (MOD)

The symbols which denote the degree of correspondence in the contents between JIS and the corresponding International Standard are IDT (identical), MOD (modified) and NEQ (not equivalent) according to ISO/IEC Guide 21.

2 Terms and definitions

For the purpose of this Standard, the following definitions of certain terms apply:

2.1 preconditioning

the treatment of a specimen with the object of removing or partly counteracting the effect of its previous history with respect, principally, to the temperature and humidity to which it has been exposed

This treatment (sometimes known as “normalizing”) usually precedes conditioning of a specimen.

2.2 conditioning of specimen

the subjection of the specimen to an atmosphere of a specified relative humidity or complete immersion in water or other liquid, at a specified temperature for a specified period of time

NOTE : When the combination of temperature and humidity for conditioning is the same as that prescribed for preconditioning, the preconditioning and conditioning may be merged and the preconditioning may be said to take the place of conditioning.

2.3 the test conditions

the temperature and humidity of the atmosphere surrounding the specimen, or temperature and kind of liquid (for liquid immersion), at the time tests are carried out

2.4 standard reference atmosphere

the atmosphere to which values measured under any other atmospheric conditions are corrected by calculation

2.5 relative humidity

the ratio of the actual vapour pressure to the saturation vapour pressure at the same (dry bulb) temperature, expressed as a percentage

3 Temperature and humidity (or liquid immersion) recommended for preconditioning, conditioning and testing

The recommended standard conditions of temperature and humidity, and liquid immersion for preconditioning, conditioning and testing are given in tables 1 and 2, respectively.

When preconditioning is required, one of the standard atmospheres or one of the dry-hot conditions given in table 1 may be used for a time specified in the material specification. It is usual to specify $50^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with a relative humidity less than 20 %, or $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with a relative humidity less than 20 %.

4 Period of conditioning

The period of conditioning should be specified in the relevant material specification or test method. The period of conditioning will usually depend upon the type of material being tested.

In general, it is not intended that the period of conditioning shall be sufficient to enable the specimens to reach equilibrium with the surrounding atmosphere. The rate at which equilibrium is reached depends largely upon the nature and dimensions of the test specimens. Consequently, the period of exposure necessary to obtain equilibrium may in some cases (e.g., thin paper) be only a matter of a few minutes, but in others (such as hard rubber) it may be many months.

It is recommended that periods of conditioning be selected from the list given in table 3.

5 Procedures for atmospheric preconditioning, conditioning and testing

It is strongly recommended that, whenever possible, tests should be made on specimens in a room or in a suitable chamber in which the required conditions are maintained throughout the test.