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JIS C 2136 : 2004
(IEEJ/JSA)

**Test method for evaluating resistance
to tracking and erosion of electrical in-
sulating materials used under severe
ambient conditions**

ICS 19.040; 29.035.01

Reference number : JIS C 2136 : 2004 (E)

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, as the result of proposal for establishment of Japanese Industrial Standard submitted by The Institute of Electrical Engineers of Japan (IEEJ) / The Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

This Standard has been made based on **IEC 60587:1984**, *Test method for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions* for the purposes of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

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In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

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Test method for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions

Introduction The Japanese Industrial Standard has been prepared based on the second edition of **IEC 60587** *Test method for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions* published in 1984 with some modifications of the technical contents.

Portions underlined with dots are the matters modified from the original International Standard. A list of modifications with the explanations is given in annex (informative).

1 Scope This Standard describes two test methods for the evaluation of electrical insulating materials for use under severe ambient conditions at power frequencies (48 Hz to 62 Hz) by measurement of the resistance to tracking and erosion, using a liquid contaminant and inclined plane specimens. Method 1: constant tracking voltage; Method 2: stepwise tracking voltage.

Remarks : The test conditions are designed to accelerate the production of the effects, but do not reproduce all the conditions encountered in service.

With the test apparatus described in clause 4, the track starts at the lower electrode. Two criteria for determining the end point of the test are in use. However, criterion A shall be given priority for use. Criterion B may be used only if it is required in relevant standards of the material.

Criterion A: The end point is reached when the value of the current in the high voltage circuit through the specimen exceeds 60 mA and continues for 2 s or more. An overcurrent device then breaks this circuit.

NOTE : This end point criterion permits the use of an automatic apparatus testing several specimens simultaneously.

Criterion B: The end point is reached when the track reaches a mark on the specimen surface 25 mm from the lower electrode (see figures 1 and 3b).

NOTE : This end point criterion requires visual supervision and manual control.

Remarks : The International Standard corresponding to this Standard is as follows.

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

IEC 60587:1984, *Test method for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions* (MOD)

2 Definitions For the purpose of this Standard, the following principal definitions apply:

2.1 track a partially conducting path created by localized deterioration on the surface of an insulating material

2.2 tracking the process that produces tracks as a result of the action of electric discharges on or close to a contaminated surface of an insulating material

2.3 erosion, electrical the wearing away of electrical insulating material by the action of electrical discharges

2.4 time-to-track the time required to produce tracks under the specified conditions of test

3 Test specimens

3.1 Dimensions Flat inclined specimens shall be at least 50 mm × 120 mm. The preferred thickness shall be 6 mm. Other thicknesses may be used, but must be mentioned in the test report. The specimens shall be drilled as shown in figure 1, to take the electrodes.

3.2 Preparation Unless otherwise specified, the surface of the specimens shall be abraded until gloss of the surface disappears by means of #2000 abrasive paper for example. The abrasion should be done with a fine silicon carbide abrasive paper under de-ionized or distilled water until the whole surface wets and appears uniformly matt when dry. If abrasion has not been used, the method of cleaning shall be mentioned in the test report.

Specimens used for criterion B (see clause 1) shall have reference marks on both edges 25 mm above the lower electrode (see figures 1 and 3b).

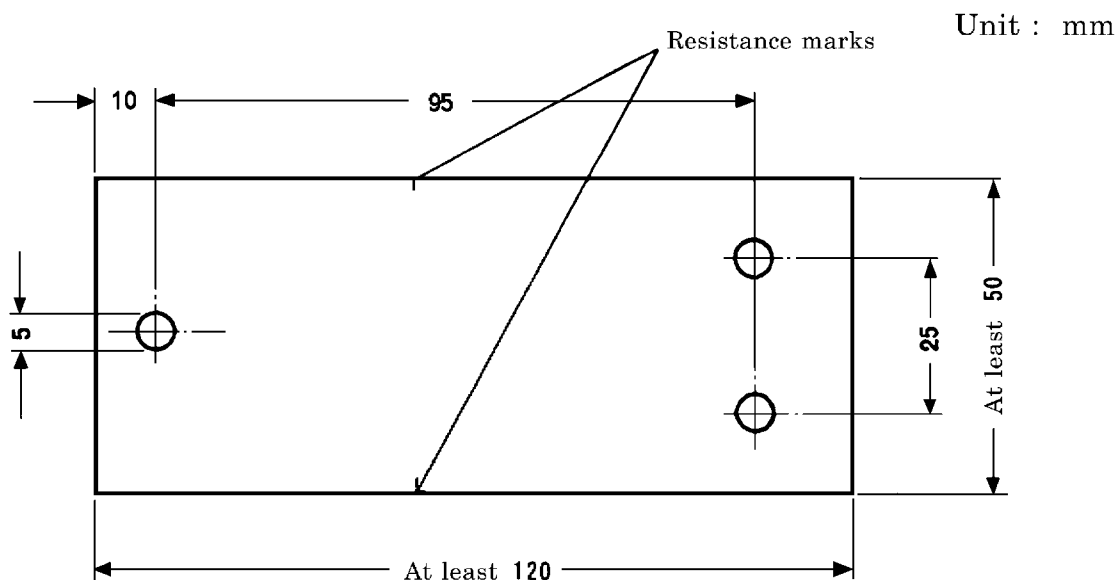


Figure 1 Test specimen with holes for fixing electrodes

4 Test apparatus

4.1 Electrical circuit A schematic circuit is given in figure 2a. As the test will be carried out at high voltages, it is obviously necessary to use an earthed safety enclosure. The circuit comprises: