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(JCA/JSA)

**Test procedures for determining
physical properties of brush
materials for electrical machines**

ICS 29.160.10

Reference number : JIS C 2820 : 2008 (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 according to the proposal of establishing a Japanese Industrial Standard from Japan Carbon Association (JCA)/Japanese Standards Association (JSA), with a 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 60413 : 1972** *Test procedures for determining physical properties of brush materials for electrical machines* for the purpose 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 procedures for determining physical properties of brush materials for electrical machines

Introduction This Japanese Industrial Standard has been prepared based on the first edition of **IEC 60413** *Test procedures for determining physical properties of brush materials for electrical machines* published in 1972 with some modifications of the technical contents.

The portions with continuous sidelines or dotted underlines are the matters in which the contents of the original International Standard have been modified. A list of modifications with explanations is given in Annex (informative).

1 Scope This Standard specifies test procedures for determining the physical properties of brush materials for electrical machines, i.e. bulk density, hardness, resistivity, transverse strength and for determining the ash content.

NOTES 1 The properties determined by these tests are inherent in the brush materials themselves as distinct from performance characteristics in operation on electrical equipment.

It should be kept in mind that since brush materials are generally brittle, porous materials, it is reasonable that their properties vary much more than the same properties in metals.

Samples used for these tests shall be representative of the batch of material involved using a recognized and/or agreed sampling procedure or technique.

2 The International Standard corresponding to this Standard is as follows.

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

IEC 60413 : 1972 *Test procedures for determining physical properties of brush materials for electrical machines* (MOD)

2 Normative references The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 7502 *Micrometer callipers*

JIS B 7507 *Vernier, dial and digital callipers*

JIS B 7727 *Shore hardness test—Verification of testing machines*

JIS C 1102-1 *Direct acting indicating analogue electrical measuring instruments and their accessories—Part 1: Definitions and general requirements common to all parts*

JIS C 1102-2 *Direct acting indicating analogue electrical measuring instruments and their accessories Part 2: Special requirements for ammeters and voltmeters*