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(JAPAN TAPPI/JSA)

**Paper and board—
Determination of colour (C/2°)—
Diffuse reflectance method**

ICS 85.060

Reference number : JIS P 8150 : 2004 (E)

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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 of establishing a Japanese Industrial Standard from Japan Technical Association of the Pulp and Paper Industry (JAPAN TAPPI)/Japanese Standards Association (JSA), with a draft of Industrial Standard based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

This Standard employs **ISO 5631 : 2000** *Paper and board—Determination of colour (C/2°)—Diffuse reflectance method* as a basis.

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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Paper and board— Determination of colour (C/2°)— Diffuse reflectance method

Introduction This Japanese Industrial Standard has been made based on the first edition of **ISO 5631** *Paper and board—Determination of colour (C/2°)—Diffuse reflectance method* published in 2000 without modifying the technical contents and by adding the items of specification not included in the corresponding International Standard.

The portions underlined with dots are the matters not specified in the corresponding International Standard.

1 Scope This Standard specifies a method for measuring the colour of paper and board by the diffuse reflectance method with the elimination of specular gloss.

This Standard is not applicable to coloured papers or boards which incorporate fluorescent dyes or pigments. It may be used to determine the colour of papers or boards which contain fluorescent whitening agents provided the UV-content of the illumination on the test piece has been adjusted to conform to that in the CIE illuminant C using a fluorescent reference standard provided by an authorized laboratory as described in **ISO 2470**.

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**.

ISO 5631 : 2000 *Paper and board—Determination of colour (C/2°)—Diffuse reflectance method* (MOD)

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. If the indication of the year of publication is given to these referred standards, only the edition of the indicated year constitutes the provision of this Standard but the revision and amendment made thereafter do not apply. The normative references without the indication of the year of coming into effect or the year of publication apply only to the most recent edition (including amendments).

JIS P 0001 *Paper, board and pulp—Vocabulary*

JIS P 8110 *Paper and board—Sampling to determine average quality*

Remarks : **ISO 186** *Paper and board—Sampling to determine average quality* is identical with the said standard.

JIS Z 8401 *Guide to the rounding of numbers*

JIS Z 8722 *Methods of colour measurement—Reflecting and transmitting objects*

ISO 2469 *Paper, board and pulps—Measurement of diffuse reflectance factor*

ISO 2470 *Paper, board and pulps—Measurement of diffuse blue reflectance factor (ISO brightness)*

CIE Publication 15.2 : 1986 *Colorimetry*

ASTM E 308-95 *Standard Practice for Computing the Colors of Objects by Using the CIE System*

3 Terms and definitions For the purposes of this Standard, the definitions given in JIS P 0001, and the following terms and definitions apply:

3.1 reflectance factor R

ratio of the radiation reflected by a body to that reflected by the perfect reflecting diffuser under the same conditions of illumination and detection, expressed as a percentage.

Information : The reflectance factor is influenced by the backing if the body is translucent.

3.2 intrinsic reflectance factor R_{∞}

reflectance factor of a layer or pad of material thick enough to be opaque, i.e. such that increasing the thickness of the pad by doubling the number of sheets leads to no change in the measured reflectance factor

3.3 tristimulus values X, Y, Z

amounts of the three reference colour stimuli, in a given trichromatic system, required to match the stimulus considered

NOTE : In this Standard, the CIE 1931 standard observer and the CIE illuminant C are used to define the trichromatic system.

3.4 CIELAB colour space

three-dimensional approximately uniform colour space, produced by plotting, in rectangular coordinates, L^* , a^* , b^* quantities defined by the equations given in clause 9

4 Principle The light reflected from a sample under specified conditions is analysed either by a tristimulus-filter colorimeter or by an abridged spectrophotometer, and the colour coordinates are then calculated.

5 Apparatus The apparatus shall be as follows.

5.1 Reflectometer, having the geometric, spectral and photometric characteristics described in **ISO 2469** and calibrated in accordance with the provisions of **ISO 2469**.

NOTE : In the 1994 edition of **ISO 2469** the reflectometer characteristics are described in annex A and the calibration service is described in annex B. When **ISO 2469** is revised, the numbering may change; users of editions subsequent to 1994 should therefore determine which elements of text specify these characteristics and this service.