



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 5600-4-6 : 1999
(ISO 7724-3 : 1984)

**Testing methods for paints—
Part 4 : Visual characteristics
of film—
Section 6 : Colorimetry (Calculation
of colour differences)**

ICS 87.040

Descriptors : paints, painting, membranes, visual perception, colorimetry, colorimetric characteristics, colour tests

Reference number : JIS K 5600-4-6 : 1999 (E)

K 5600-4-6 : 1999 (ISO 7724-3 : 1984)

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

JIS K 5400 corresponding to this Standard will be withdrawn and replaced with this Standard in April 2002, at the time of three years passed after establishment of this Standard.

Consequently it is recommended to comply with this Standard.

JIS K 5600 consists of the following parts.

JIS K 5600 Part 1 Section 1 to Section 8	<i>General rule</i>
JIS K 5600 Part 2 Section 1 to Section 7	<i>Characteristics and stability of paints</i>
JIS K 5600 Part 3 Section 1 to Section 6	<i>Film formability</i>
JIS K 5600 Part 4 Section 1 to Section 7	<i>Visual characteristics of film</i>
JIS K 5600 Part 5 Section 1 to Section 11	<i>Mechanical property of film</i>
JIS K 5600 Part 6 Section 1 to Section 3	<i>Chemical property of film</i>
JIS K 5600 Part 7 Section 1 to Section 8	<i>Long-period performance of film</i>
JIS K 5600 Part 8 Section 1 to Section 6	<i>Evaluation of degradation of paint coatings</i>

JIS K 5600-4 consists of the following sections under the title of "Testing methods for paints—Part 4 : Visual characteristics of film".

JIS K 5600 Part 4 Section 1	<i>Hiding power (for light-coloured paints)</i>
JIS K 5600 Part 4 Section 2	<i>Hiding power (for dark-coloured paints)</i>
JIS K 5600 Part 4 Section 3	<i>Visual comparison of the colour of paints</i>
JIS K 5600 Part 4 Section 4	<i>Colorimetry (Principles)</i>
JIS K 5600 Part 4 Section 5	<i>Colorimetry (Measurement)</i>
JIS K 5600 Part 4 Section 6	<i>Colorimetry (Calculation of colour differences)</i>
JIS K 5600 Part 4 Section 7	<i>Specular gloss</i>

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the original JIS is to be the final authority.

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Testing methods for paints—

Part 4 : Visual characteristics of film—

Section 6 : Colorimetry

(Calculation of colour differences)

Introduction This Japanese Industrial Standard has been prepared based on ISO 7724-3 : 1984 *Paints and varnishes—Colorimetry—Part 3 : Calculation of colour differences*, without changing the technical contents.

The portions underlined with dots in this Standard are not stated in the original International Standard.

The specifications for colorimetry consist of the following three sections.

JIS K 5600-4-4 *Testing methods for paints—Part 4 : Visual characteristics of film—Section 4 : Colorimetry (Principles)*

JIS K 5600-4-5 *Testing methods for paints—Part 4 : Visual characteristics of film—Section 5 : Colorimetry (Measurement)*

JIS K 5600-4-6 *Testing methods for paints—Part 4 : Visual characteristics of film—Section 6 : Colorimetry (Calculation of colour differences)*

JIS K 5600-4-4, JIS K 5600-4-5 and JIS K 5600-4-6 describe methods for the instrumental determination of the colour co-ordinates and colour differences of paint films, as required for such purposes as

- a) the objective description of colour differences between a test specimen (a test panel coated with a paint, or a specimen from a painted article) and a reference specimen;
- b) determining colour deviations in the production of painted articles so that the results may be used for the control or regulation of the process;
- c) the objective description of changes in colour caused by weathering and other chemical or physical influences;
- d) the objective supervision of colour reference standards.

Note : Colour reference standards are subject to ageing, which may lead in the course of time to pronounced changes in colour. High accuracy colorimetry is required for the timely detection of these changes. This is of particular importance when ordering against such reference standards.

1 Scope This Standard describes a method for the quantitative colorimetric evaluation of small colour differences between paint films.

Note : There are numerous formulae for calculating a colour difference from the colour co-ordinates of two specimens. For various reasons the results given by such formulae, including the one defined here, do not in all cases agree satisfactorily with visual perception nor are they likely to agree with each other. The Commission Internationale de l'Éclairage (CIE) recommended in 1976 two formulae for general use. One of these, the CIE 1976 ($L^*a^*b^*$) colour difference formula (see CIE Publication No. 15 Supplement No. 2),