



JAPANESE
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STANDARD

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**Testing methods for paints—
Part 1 : General rule—
Section 1 : General test methods
(conditions and methods)**

ICS 87.040

Descriptors : paints, film-forming capacity, cross-cut test, testing, testing conditions, specifications

Reference number : JIS K 5600-1-1 : 1999 (E)

K 5600-1-1 : 1999

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JIS K 5400 corresponding to this Standard will be withdrawn and replaced with this Standard in April 2002, at the time of three years passed after establishment of this Standard.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 5600-1 consists of the following sections under the title of "Testing methods for paints—Part 1 : General rule".

JIS K 5600 Part 1 Section 1	<i>General test methods (conditions and methods)</i>
JIS K 5600 Part 1 Section 2	<i>Sampling of products</i>
JIS K 5600 Part 1 Section 3	<i>Examination and preparation of samples for testing</i>
JIS K 5600 Part 1 Section 4	<i>Standard panels for testing</i>
JIS K 5600 Part 1 Section 5	<i>Coating of test panel (brush application)</i>
JIS K 5600 Part 1 Section 6	<i>Temperatures and humidities for conditioning and testing</i>
JIS K 5600 Part 1 Section 7	<i>Determination of film thickness</i>
JIS K 5600 Part 1 Section 8	<i>Reference sample</i>

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Testing methods for paints— Part 1 : General rule— Section 1 : General test methods (conditions and methods)

Introduction This Japanese Industrial Standard specifies the general test conditions and general test methods of test required, which are not given in the current ISO—Testing methods for paints, on the occasion of establishment and amendment of the standard for paint products.

1 Scope This Standard is one of a series of standards dealing with the sampling and testing of paints and related products. This Standard specifies the general conditions and general methods of test on the quality assessment of paints and coatings.

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

JIS B 7410 *Liquid-in-glass thermometers for testing of petroleum product*

JIS B 7502 *Micrometer callipers*

JIS B 7525 *Density hydrometers*

JIS B 7601 *Trip balances*

JIS B 7751 *Light-exposure and light-and-water-exposure apparatus (enclosed carbon-arc type)*

JIS B 7754 *Light-exposure and light-and-water-exposure apparatus (xenon-arc lamp type)*

JIS B 9809 *Spray guns*

JIS K 5600-1-4 *Testing methods for paints—Part 1 : General rule—Section 4 : Standard panels for testing*

JIS K 5600-1-6 *Testing methods for paints—Part 1 : General rule—Section 6 : Temperatures and humidities for conditioning and testing*

JIS K 5600-1-7 *Testing methods for paints—Part 1 : General rule—Section 7 : Determination of film thickness*

JIS R 3503 *Glass apparatus for chemical analysis*

JIS R 3505 *Volumetric glassware*

JIS R 6251 *Abrasive cloths*

JIS R 6252 *Abrasive papers*

JIS R 6253 *Waterproof abrasive papers*

JIS Z 1522 *Pressure sensitive adhesive cellophane tapes*

JIS Z 2371 *Methods of neutral salt spray testing*

JIS Z 872 *Methods of colour measurement—Reflecting or transmitting objects*

JIS Z 874 *Specular glossiness—Methods of measurement*

JIS Z 8801 *Test sieves*

JIS Z 9041 *Presentation and reduction of data*

3 General conditions of test

3.1 Test site The conditions of site for tests to be carried out shall be as follows.

3.1.1 General conditions The test and site under general conditions refer to the room at an ordinary temperature (5 °C to 35 °C) which is not exposed to the direct light of the sun and in which the gas, vapour, dust and others influencing on the test are less.

Remarks : The site for test and conditioning under the standard conditions shall be as specified in **JIS K 5600-1-6**.

3.1.2 Site for spray coating The site for spray coating refers to the place⁽¹⁾ of 20 °C ± 5 °C in temperature and not more than 78 % in humidity, and their records shall be taken at every testing for the reference of subsequent test.

Note ⁽¹⁾ It is desirable to coat in a spray booth exhausting at about 0.7 m/s wind speed.

3.2 Common items The common items such as the glass instruments and materials, reagents, testing apparatus and the like to be used for test, and their control method, the treatment method of measured values, the specified conditions of product standard and the like shall be as follows.

3.2.1 Instruments, materials and reagents to be used for tests For the instruments, materials and reagents to be used for tests, those specified respectively in the Japanese Industrial Standards indicated below shall be used.

a) Glass apparatus

The glass apparatus for chemical analysis specified in **JIS R 3503** shall be used.

The volumetric glassware specified in **JIS R 3505** shall be used.

b) Materials

The standard panels for testing specified in **JIS K 5600-1-4** shall be used.

The abrasive cloths specified in **JIS R 6251** shall be used.

The abrasive papers specified in **JIS R 6252** shall be used.

The waterproof abrasive papers specified in **JIS R 6253** shall be used.

The pressure sensitive adhesive cellophane tapes specified in **JIS Z 1522** shall be used.

c) Reagents The reagents of the highest quality specified respectively in Japanese Industrial Standard shall be used.

Deionized water of not more than 1 µs/cm in electric conductivity shall be used.

3.2.2 Testing equipment and others and their control method The selection and control method of testing equipment and others (equipment, machine and apparatus) seriously effect to the test results, and therefore the attention shall be thoroughly drawn to the following:

- a) **Testing equipments** For the testing equipments (equipment, machine, apparatus and others), those specified in the Japanese Industrial Standard mentioned below shall be used in principle.

The liquid-in-glass thermometers for testing of petroleum product specified in **JIS B 7410** shall be used.

The micrometer callipers specified in **JIS B 7502** shall be used.

The density hydrometers specified in **JIS B 7525** shall be used.

The trip balance specified in **JIS B 7601** shall be used.

The light-exposure and light-and-water-exposure apparatus (enclosed carbon-arc type) specified in **JIS B 7751** shall be used.

The light-exposure and light-and-water-exposure apparatus (xenon-arc lamp type) specified in **JIS B 7754** shall be used.

The spray guns specified in **JIS B 9809** shall be used.

The neutral salt spraying testing apparatus of the methods of neutral salt spraying testing specified in **JIS Z 2371** shall be used.

The methods of colour measurement—Reflecting or transmitting object specified in **JIS Z 8722** shall be used.

The specular glossiness measuring apparatus of the specular glossiness—Methods of measurement specified in **JIS Z 8741** shall be used.

- b) **Thermostat** The thermostat shall be electric thermostat capable of slowly ventilating and having the capacity of 20 l or over per 100 cm² of coated surface to be put in the inside. In the part where the test pieces are placed, the air maintained at the temperature specified in the product standard of the sample can circulate gently and uniformly and that part shall be adjustable so as to reach the specified temperature within 5 min after the test pieces are placed in thermostat.

Care shall be taken not to cause heating or cooling ununiformity of test pieces due to the influence of the radiation of thermic ray or cold from the heating or cooling part of thermostat, the thermal conduction from the supporting stand of test pieces and others. The thermostat shall be so constructed that the test pieces are placed at the position apart from heating or cooling part and the heated or cooled air is circulated in thermostat.

The supporting stand of test pieces shall be made of wire in the shape as shown in Fig. 1, on which the test pieces are placed and put in the thermostat.