

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 101-4-3 (1988): Methods of Sampling and Test for Paints, Varnishes and Related Products, Part 4: Optical Tests, Section 3: Light Fastness Test [CHD 20: Paints, Varnishes and Related Products]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



*Indian Standard***METHODS OF SAMPLING AND TEST FOR
PAINTS, VARNISHES AND RELATED PRODUCTS****PART 4 OPTICAL TESTS****Section 3 Light Fastness Test
(Third Revision)**

1. Scope — Prescribes a method for the determination of light fastness of paints for interior use by exposure to light from artificial sources under prescribed conditions. In case of dispute, the xenon arc shall be used as referee method.

2. Apparatus

2.1 Apparatus embodying either a xenon lamp or carbon arc may be used.

2.1.1 Test chamber — The test chamber shall consist essentially of a ventilated enclosure at the centre of which the source or radiation shall be situated. The test panels shall be held on a suitable rack arranged symmetrically around the source so that the irradiance falling on any part of the panels does not vary from the mean value by more than ± 10 percent. The panel rack may be rotated continuously around the radiation source to improve the even distribution of the light.

The enclosure shall be so constructed that any ozone produced by the radiation source does not come into contact with the test panels.

The conditions in the test chamber shall be as follows:

Air temperature	$35 \pm 5^\circ\text{C}$
Black panel temperature	$50 \pm 5^\circ\text{C}$
Relative humidity	65 ± 5 percent

2.1.2 Radiation source — The radiation source shall consist of a suitable xenon lamp or carbon arc, together with an appropriate filter system which does not significantly alter the visible output of the arc. The irradiance on the panels shall be $100 \pm 25 \text{ W/m}^2$ in the range 310 to 400 nm. The irradiance at wavelengths shorter than 310 nm shall not exceed 0.5 W/m^2 .

Note 1 — If there is doubt as to whether a particular type of equipment is in accordance with this standard, this shall be established by the user, by the manufacturer of the equipment or by an independent test authority.

Note 2 — In view of the short-term fluctuations of the output of the carbon arc, it is essential that the average for the irradiance shall be taken over a period of not less than 5 h.

2.1.3 The following items are also required.

2.1.3.1 Cover sheet — of aluminium foil.

2.1.3.2 Colour matching cabinet

2.1.3.3 Calibration standards — For example, wool scale patterns complying with IS : 686-1985 'Method for determination of colour fastness of textile materials to daylight'.

2.1.3.4 Cardboard — of thickness approximately 0.5 mm and of rigid quality for mounting the dyed wool calibration standards.

2.1.3.5 Geometric grey scale — complying with IS : 768-1982 'Method for evaluating change in colour (first revision)'.

3. Preparation and Coating of Test Panel

3.1 Unless otherwise agreed, use a panel of hard aluminium and coat it with an etch primer. The dimensions of the panel shall be suitable for the apparatus being used but shall not in any case be smaller than 60 mm \times 40 mm.

IS : 101 (Part 4/Sec 3) - 1988

3.2 Coat the panel with the product under test by the specified method and allow it to dry (or stove) and age in the specified manner and for the specified time. If normal drying conditions are specified, these shall be interpreted as a temperature of $27 \pm 2^\circ\text{C}$ and a relative humidity of 65 ± 5 percent with free circulation of air and no exposure to direct sunlight.

4. Procedure

4.1 Cover half of the test panel and, where appropriate, the calibration standard (2.1.3.3) with the cover sheet (2.1.3.1) and expose it in the apparatus for the specified period.

This procedure advocates the use of the unexposed area adjacent to the exposed area for comparison, which is useful for checking the progress of the exposure. Comparisons, however, shall be based on contrast with a reference sample or other agreed standard.

4.2 At regular intervals, remove the test panel from the apparatus, remove the cover sheet and observe the degree of colour change on the test panel and standard.

The comparison shall be carried out in the colour matching cabinet (2.1.3.2). If agreed, the colour change may be determined instrumentally.

Use may be made of the geometric grey scale (2.1.3.5), in recording the degree of colour change. If the test is to be continued, carefully replace the cover sheet in its original position.

4.3 Assess the degree of light fastness of the test panel in terms of the specified or agreed requirements.

5. Monitoring

5.1 The irradiance is specified (2.1.2) but is liable to fall during operation owing to progressive ageing of the lamps and filters, inefficient cleaning or incorrect operation. The user shall, therefore, carry out regular and frequent checks on the output of the radiation source.

5.2 The checking procedure is not specified in this standard. The principles on which a suitable method may be based include the following:

- a) Measurement of the spectral energy distribution by means of a suitable spectrophotometer;
- b) Measurement of irradiance in wave bands using a photo-electric device with suitable filters;
- c) Chemical actinometry with suitable filters; and
- d) Measurement of actinic effect, for example, by means of blue wool standards or photosensitive polymers.

5.3 Should the check procedure indicate that the irradiance has fallen outside the specified limits, action shall be taken to restore the radiation to its original level. This may entail renewal of the lamp, cleaning or renewal of the filters or attention to the operating conditions.

EXPLANATORY NOTE

This standard is one of a series of standards on paints, varnishes and related products. The method specified in this standard if carried out under prescribed conditions have been shown to correlate acceptably with exposure to daylight through glass. For critical application, the user should generally satisfy himself that the degree of correlation is acceptable for this purpose. This standard supersedes 12 of IS:101-1964 'Methods of test for ready mixed paints and enamels (second revision)'.