

BRITISH STANDARD 3944 : 1965

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**SPECIFICATION FOR
COLOUR FILTERS FOR
THEATRE LIGHTING**

BRITISH STANDARDS INSTITUTION



Documents

SPECIFICATION FOR
COLOUR FILTERS FOR
THEATRE LIGHTING
AND OTHER PURPOSES

B.S. 3944:1965

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BRITISH STANDARDS INSTITUTION

INCORPORATED BY ROYAL CHARTER

BRITISH STANDARDS HOUSE, 2 PARK ST., LONDON, W.1

TELEGRAMS: STANDARDS LONDON W1 TELEPHONE: MAYFAIR 9000

B.S. 3944 : 1965

THIS BRITISH STANDARD, having been approved by the Cinematograph Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 19th November, 1965.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 4000, fully indexed and with a note of the contents of each, will be found in the British Standards Yearbook, price 15s. The B.S. Yearbook may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards:

B.S. 1006. Reference standards for the determination of fastness to daylight of coloured textiles.

B.S. 2662. Grey scale for assessing change in colour.
2662C. Geometric grey scale for assessing the effect on the pattern in fastness testing.

B.S. 2782. Methods of testing plastics.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following B.S.I. references relate to the work on this standard:
Committee reference CME/21 Draft for comment D64/3197

CO-OPERATING ORGANIZATIONS

The Cinematograph Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Association of Cinematograph, Television and Allied Technicians
Board of Trade
British Broadcasting Corporation
British Film Institute
British Film Producers Association
*British Kinematograph, Sound and Television Society
British Photographic Manufacturers Association
*Cinematograph Exhibitors Association of Great Britain and Ireland
Federation of British Film Makers
Federation of Specialised Film Associations
Home Office
*Illuminating Engineering Society
Incorporated Association of Kinematograph Manufacturers Ltd.
Independent Television Companies Association
Kinematograph Renters' Society
Ministry of Defence, Army Department
Royal Photographic Society

The Government department and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

British Plastics Federation
Electric Light Fittings Association
Greater London Council
Ministry of Technology—Joint Fire Research Organization of the Ministry of Technology and Fire Offices Committee
Theatrical Managers' Association
Manufacturers of colour filters

B.S. 3944 : 1965

BRITISH STANDARD SPECIFICATION FOR COLOUR FILTERS FOR THEATRE LIGHTING AND OTHER PURPOSES

FOREWORD

This British Standard has been prepared under the authority of the Cinematograph Industry Standards Committee at the request of the Theatrical Managers Association and the Cinematograph Exhibitors' Association.

SPECIFICATION

SCOPE

1. This British Standard applies to colour filters comprising a coloured sheet, normally of plastics, as used for theatre stage illumination by tungsten filament lamp, electric arc, or other light source, and as colour media in EXIT signs, decorative lighting, and similar applications.

DURABILITY

2. The material shall meet the requirements of Clause 5 and shall be of an adequate robustness to withstand the hazards likely to be met in normal use in the theatre.

COLOUR FASTNESS TO ARTIFICIAL LIGHT

3. When tested in accordance with the method described in Appendix A, the material shall not fade or change hue to an extent greater than that of the dyed wool standard No. 4*.

COLOUR FASTNESS TO HEAT

4. When tested in accordance with the method described in Appendix B, the material shall not fade or change hue to an extent greater than Grade 3 on the standard geometric grey scale†.

NON-FLAMMABILITY

5. When tested in accordance with the method described in Appendix C, a test sample shall comply with the following requirements:

a. Duration of flaming. The test sample shall not continue to flame or to glow for more than 5 seconds after the igniting flame has burned out.

*B.S. 1006, 'Reference standards for the determination of fastness to daylight of coloured textiles'.

†B.S. 2662, 'Grey scale for assessing change in colour', B.S. 2662C, 'Geometric grey scale for assessing the effect on the pattern in fastness testing'.

b. Extent of burning. The length of the charred or scorched edge of the underside of the sample shall not exceed 2 in (51 mm). Charring or scorching shall not extend over more than 20 per cent of the surface area of the sample, any hole formed being regarded as part of the charred area.

c. Spread of fire. Any material which may drop from the sample shall not continue to burn after it has reached the base of the apparatus.

From each batch of filters, three samples shall be tested. If two out of these three samples fail to meet the requirements of the test the batch shall be regarded as failing to comply with the requirements of this standard. If one sample fails to meet the requirements of the test a further three samples shall be tested and if any one of these should fail to meet the requirements of the test, the batch shall be regarded as failing to comply with the requirements of this standard.

DENSITY AND COLOUR

6. The colour filters enumerated below*:

No. 6	Primary red	No. 24	Dark green
No. 14	Ruby	No. 33	Deep amber
No. 15	Peacock blue	No. 39	Primary green
No. 16	Blue green	No. 50	Pale yellow
No. 20	Deep blue primary	No. 55	Chocolate tint

shall, when tested in accordance with the method described in Appendix D, be a good visual match to the reference filter as regards both density and hue.

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*These numbers are those customarily used by the manufacturers of colour filters.

B.S. 3944 : 1965

APPENDIX A

METHOD OF TEST FOR COLOUR FASTNESS TO ARTIFICIAL LIGHT

NOTE. The technical content of this appendix is in accord with Method 507B of B.S. 2782, 'Methods of testing plastics', Part 5, 'Miscellaneous methods'.

A1. Form of test specimen. The specimen shall be a piece of sheet of any convenient size, e.g. $1\frac{1}{2}$ in (38 mm) long and 1 in (25 mm) wide.

A2. Number of test specimens. One test specimen shall be used.

A3. Procedure. The dyed wool standards of B.S. 1006* and the test specimen, each shielded over half its area, shall be exposed to an enclosed carbon arc lamp for a sufficient time to cause Standard No. 5 to change colour so that the exposed portion of that standard shall have a contrast with the unexposed portion equal to Grade 4 of the geometric grey scale of B.S. 2662†. During the test, any surfaces behind the test specimen shall be matt black. The temperature of the air surrounding the test specimen during the test, measured by a black panel thermometer assembly, shall be approximately 50°C.

The dyed wool standards shall be examined often enough to ensure that the specified degree of fading of Standard No. 5 is observed.

After the prescribed exposure the specimen shall be examined in comparison with the dyed wool standards, in the light of a 100 W or 150 W 'general service' tungsten filament lamp of not more than 100 hours use, operating at its rated voltage.

The colour fastness to artificial light of the material under test shall be the number of the dyed wool standard that has changed colour to the same extent as the test specimen.

NOTE. The use of a tungsten lamp light source in place of the carbon arc now specified is under consideration, on the ground that the tungsten lamp accords more closely with the conditions of use of filters. If a satisfactory test method is developed, it is intended to substitute this for the carbon arc method given in the present standard.

APPENDIX B

METHOD OF TEST FOR COLOUR FASTNESS TO HEAT

B1. A sample of the material shall be heated in a ventilated oven for a period of 6 hours at a temperature of 120°C.

After cooling, the change in colour with reference to an untreated piece of the material shall be compared and rated by means of the geometric grey scale of B.S. 2662†,

*B.S. 1006, 'Reference standards for the determination of fastness to daylight of coloured textiles'.

†B.S. 2662, 'Grey scale for assessing change in colour', B.S. 2662C, 'Geometric grey scale for assessing the effect on the pattern in fastness testing'.