BS 5790 : Part 2 : 1979
UDC 684.7 : 677.074 : 678.743.22.066

Coated fabrics for upholstery

Part 2. Specification for PVC coated woven fabrics

Tissus traités pour capitonnage
Partie 2. Spécification des textiles recouverts de PVC

Schichtstoffe für Möbelbezug
Teil 2. Spezifikation für PVC-beschichtete Webwaren

British Standards Institution

Gr 3

Contents

Foreword

The earlier editions of this British Standard, dealing with PVC coated woven fabrics for upholstered furniture were published as BS 2601. In similar fashion BS 4216 dealt with PVC coated knitted fabrics for upholstery. These two standards are now rationalized as Part 2 and Part 1 respectively of this new British Standard.

Since the publication of the 1973 edition of BS 2601, which is now withdrawn, the number of grades specified has been reviewed and reduced from a total of four to two and an additional method of test to assess the resistance to wear of applied surface finishes has been introduced.

In the absence of an alternative British Standard method of test for determination of the flammability characteristics of upholstery materials, the levels of flammability performance have, as an interim measure, been maintained as specified in the amendment to the 1973 edition of this standard. The attention of the industry is however drawn to DD 58 and to the fact that for Government and local authority requirements the DOE/PSA FRS No. 3 (Fire barrier standards for upholstery) may apply.

AMD 3778

'The levels of flammability performance have been maintained as specified in the amendment to the 1973 edition of this standard as a convenient means of quality control in the manufacturing industry. Attention is however drawn to the requirements of the Upholstered Furniture (Safety) Regulations 1980 (SI 1980/725).',

British Standard

Coated fabrics for upholstery

Part 2. Specification for PVC coated woven fabrics

1. Scope

This Part of this British Standard specifies requirements for coated fabrics for upholstered furniture, manufactured by applying to one side of a woven cloth a substantially continuous coating of suitably plasticized and pigmented polymer of vinyl chloride, or a copolymer, the major constituent of which is vinyl chloride. Such coatings are known as polyvinyl chloride (PVC) coatings.

2. References

The titles of the standards publications referred to in this British Standard are listed on the inside back cover.

3. Marking

Each roll of fabric shall have a label attached bearing the following information.

(a) The name and/or distinctive mark of the manufacturer and an identification reference for that material.

(b) The number of this Part of this British Standard, i.e. BS 5790 : Part 2, and the appropriate grade reference.

4. Sampling

Samples shall be taken at random in such a manner that they shall be representative of the whole.*

5. Compliance and re-testing

Tests shall be conducted on a set of specimens extracted from each sample.

The method of selecting specimens from each sample shall be in accordance with the requirements of appendix A.

If the specimens after testing comply with the requirements given in table 1 and table 2, the bulk of the coated fabric which the sample represents shall be deemed to comply with the requirements of this Part of this British Standard.

If any of the specimens tested do not comply with any of the requirements given in table 1 and table 2, the tests which the specimens have failed shall be repeated twice. For this purpose two further samples shall be taken from the same source as the original sample and test specimens shall be taken from each sample so that duplicate tests may be conducted. If all the re-test results comply with the requirements of table 1 and/or table 2 as is appropriate then the bulk, represented by the samples from which the specimens for re-testing have been taken, together with the original samples, shall be deemed to comply with the requirements of this Part of this British Standard. If any of the results of the re-test taken from the second series of samples do not comply with the requirements of table 1 or table 2 the bulk represented by those samples shall be deemed not to comply with the requirements of this Part of this British Standard.

6. Technical requirements

6.1 Physical requirements. The material shall comply with the requirements of table 1.

6.2 Colour fastness requirements. The material shall comply with the requirements of table 2.

6.3 Visual examination. The coating of the material shall be uniformly applied and shall be free from visible flaws and cracks and when viewed under a magnification of x10 shall be substantially free from pin-holes. The base cloth shall not be visible through the coating unless the latter is intended to be translucent.

6.4 Colour, grain and finish. Colours shall be compared under the conditions stipulated in BS 950.

NOTE. The colour, grain and finish, whether in single colour or multicolour effects, should be agreed between the purchaser and the supplier.

6.5 Width of material. The width of material shall be measured in accordance with method 1 of BS 3424. The 'usable width' shall be the width of material coated in such a manner that it complies with the requirements of **6.3.**

NOTE. The usable width should be agreed between the purchaser and the supplier.

*The use of tables of random numbers is recommended, e.g. Tippet, L.H.C. *Random sampling numbers,* Cambridge University Press. Kendal, M.G. and Babington Smith, B., *Tables of random sampling numbers,* Cambridge University Press.

6.6 Flammability. When specified by the purchaser, the fabric when tested in accordance with method 17 of BS 3424 shall meet the following requirements.

(a) The duration of burning plus the after-glow of the specimen tested shall not exceed 15 s after removal of the source of ignition and any molten droplets shall not continue to burn longer than 5 s after falling to the bottom of the combustion chamber.

(b) The average char length shall not exceed 200 mm and no individual specimen shall have a char length exceeding 250 mm.

'NOTE. Test method 17 of BS 3424 is a small scale flammability test and as such does not purport to represent conditions under which a coated fabric would be exposed to flame in any particular end use. Assessment of flammability in relation to a specific end use should be carried out in accordance with the requirements of the Upholstered Furniture (Safety) Regulations 1980 (SI 1980/725) or other such United Kingdom Government Regulations from time to time in force.'

Table 1. Physical requirements

Property	Requirements			Method of test no. in BS 3424
	Max./Min.	Grade A	Grade B	
Total mass/unit area (g/m²)	min.	550	420	5
Coating mass/unit area (g/m²)	min.	300	240	5
Te[illegible]trength (N/50 mm)				7A
[illegible]ngitudinal	min.	40	29	
transverse	min.	40	29	
Coating adhesion (N/50 mm)	min.	26	26	9A or 9C
Breaking strength (N)				6A or 6C*
longitudinal	min.	580	450	
transverse	min.	580	450	
Flex cracking (cycles)	min.	400 000	300 000	11A or 11B†
Surface drag: angle (°)	max.	30	30	12
Heat ageing (% coating mass loss)	max.	5	5	14A
Printwear (change of appearance) grey scale rating	min.	3	3	See appendix B of this standard
Th[illegible]ess (mm) min[illegible]num individual reading	min.	0.4	0.4	26

*In the event of dispute method 6C (CRE) is to be employed.
†In the event of dispute method 11B (i.e. Schildknecht apparatus) is to be employed.

Table 2. Colour fastness requirements

Property	Requirements			Method of test no. in BS 3424
	Max./Min.	Grade A	Grade B	
Colour fastness: to light*	min.	5	5	15†
to rubbing	min.	4	4	16

*There are certain shades for which a light fastness rating of 5 cannot be attained. In cases where such shades are required the light fastness rating shall, by agreement between the purchaser and the supplier, be not less than 4.

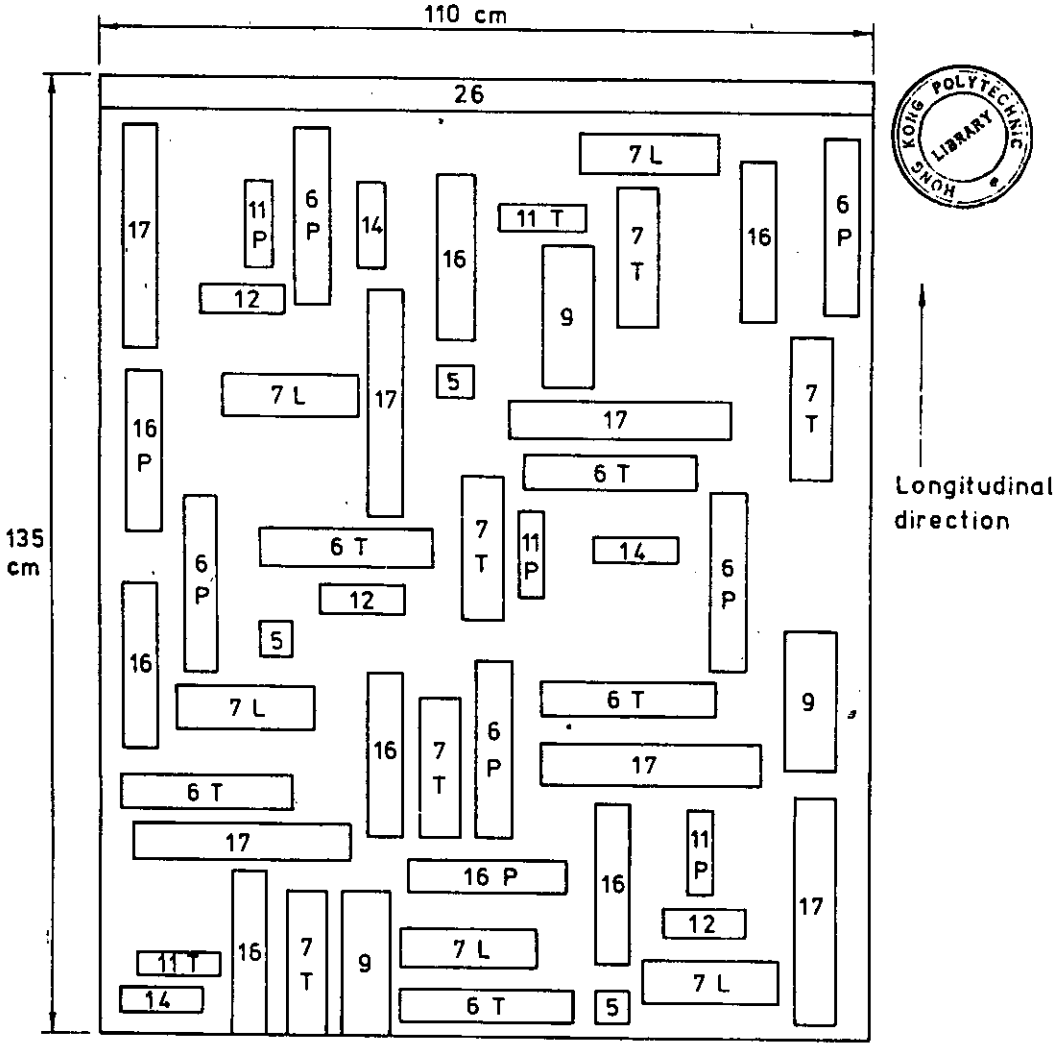
†Method 15 of BS 3424 makes reference to BS 1006. The method applicable shall be method 1 of section 802 of BS 1006.

Appendix A

Method of selecting test specimens

The specimens for testing shall be selected from the sample in accordance with the scheme illustrated in figure 1 which shows the positions from which the specimen for each type of test shall be taken, except that the specimens required for testing colour fastness to light shall be selected from any suitable portion of the sample. In the case of multicoloured samples the specimen shall if possible include all colours. If it is not possible to include all colours, sufficient specimens shall be taken to enable all colours to be tested.

NOTE. In the case of multicoloured samples it may be necessary, for the purpose of assessing colour fastness to wet and dry rubbing, to take additional specimens in order to ensure that all colours are tested.



Key

5 Mass determinations (3 pieces, 50 mm X 50 mm)
7L Tear strength (across longitudinal threads) (5 pieces, 200 mm X 60 mm)
7T Tear strength (across transverse threads) (5 pieces, 200 mm X 60 mm)
6P Breaking strength (longitudinal) (5 pieces, approximately 250 mm X 50 mm)
6T Breaking strength (transverse) (5 pieces, approximately 250 mm X 50 mm)
9 Coating adhesion (3 pieces, 200 mm X 75 mm)
11P Resistance to flex cracking (longitudinal direction) (3 pieces, 37.5 mm X 125 mm, or 3 pieces, 50 mm X 100 mm)
11T Resistance to flex cracking (transverse direction) (2 pieces, 37.5 mm X 125 mm, or 2 pieces, 50 mm X 100 mm)
12 Surface drag (3 pieces, 120 mm X 40 mm)
14 Heat ageing (3 pieces, 125 mm X 37.5 mm)
16 Colour fastness to rubbing (wet and dry) (6 pieces, 230 mm X 50 mm) (see note below)
16P Print wear (2 pieces, 230 mm X 50 mm)
17 Specimens for flammability testing (6 pieces, 318 mm X 51 mm)

Figure 1. Scheme for selection of test specimens

Appendix B

Method of test for determination of resistance to print wear

B.1 Principle. A specimen is subjected to 500 cycles of simple harmonic abrasion using a known abradant under a known pressure. It is then assessed for colour difference with the unabraded portion using the grey scale for change in colour.

B.2 Apparatus. The apparatus shall be as described in method 16 of BS 3424 with the following modifications.

(a) The weight-piece applied to the peg shall be such that a total mass of 1500 g is brought to bear on the glass plate.

(b) Use as the abradant a chemically bleached cotton fabric of the following loomstate specifications*.

Weave: 5 shaft sateen
Mass/unit area:
loomstate 291.0 g/m^2
bleached 270.0 g/m^2 (approx.)
Ends per cm: 21
Picks per cm: 34
Warp yarns: 37 tex
Weft yarns: 54 tex.

(c) Grey scale for assessing change in colour (see BS 1006 : section A02).

B.3 Test specimen. Cut two specimens of coated fabric each 230 mm x 50 mm, one with its length parallel to the longitudinal direction of the sample and the other with its length parallel to the transverse direction. Also cut the circular pieces of the bleached cotton fabric each 30 mm diameter, avoiding lumps and neps.

B.4 Procedure. Condition the test specimen and bleached cotton fabric in accordance with method 4 of BS 3424.

Using the clamps mount the test specimen securely on the bed of the machine with the coated side uppermost and under sufficient tension to hold the specimen flat.

Wipe the coated surface of the specimen with a clean dry cloth to remove dust before testing.

Secure the conditioned bleached cotton fabric to the base of the brass peg making sure that the face of the sateen is presented to the specimen under test, i.e. with the ribbed side of the bleached cotton fabric in contact with the brass peg. Lower the peg on to the specimen and run the machine for 500 cycles. Repeat the procedure using the second specimen and bleached cotton fabric.

Assess the degree of surface print wear on the specimen, using the grey scale as comparator in accordance with the requirements of BS 1006 : section A02. If one specimen exhibits greater print wear than the other the worse result of the two shall be taken as the test result.

B.5 Expression of results. Report the change in shade between the abraded and unabraded portions of the test specimen by reference to the grey scale for change in colour.

*A fabric conforming to this specification is obtainable from Storey Bros & Co Ltd, Whitecross Mills, Lancaster.