BS 3424 : Part 22 : 1983

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British Standard

Testing coated fabrics

Part 22. Method 25. Methods for determination of fusion of PVC coatings and the state of cure of vulcanized rubber coatings

Essais des tissus enduits
Partie 22. Méthode 25. Méthode de détermination de la fusion des revêtements en PVC et de l'état de vulcanisation des supports textiles revêtus de caoutchouc vulcanisé

Prüfung beschichteter Gewebe
Teil 22. Verfahren 25. Verfahren zur Bestimmung des Verschmelzungsverhaltens von PVC-Beschichtungen und des Vulkanisationszustands vulkaniserter Gummibeschichtungen

IMPORTANT NOTE. It is recommended that this Part be read in conjunction with the information in Part 0 'Foreword and general introduction'.

Foreword

The methods of test described in this Part of BS 3424 are included because of their value as control tests in the manufacture of coated fabrics. As a general rule if fusion or vulcanization is incomplete the mechanical and physical properties of the coated fabric will be insufficient and consequently further testing will not be worthwhile.

The test described in method 25A fulfils all the requirements of ISO 6451 published by the International Organization for Standardization (ISO).

Because of the subjective means of assessing the results of method 25B, it is not suitable for inclusion in British Standard product specifications as a method for assessing the degree or extent of cure of vulcanized rubber coatings. Test methods for studying the degree of cure or extent of crosslinking are being developed and will be published as soon as practicable.

This Part supersedes method 25 of BS 3424 : 1973.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

1. Scope

This Part of this British Standard describes methods for the determination of fusion of PVC coatings and the determination of the state of cure of vulcanized rubber coatings.

NOTE. The titles of the publications referred to in this Part are listed on the inside back page.

2. Method 25A: determination of fusion of PVC coatings

NOTE. This method is not suitable for coatings based upon PVC latices or certain PVC copolymers.

2.1 Apparatus and reagent

2.1.1 *Glass vessel and cover.*

2.1.2 *Glass rod* of 5 mm diameter.

2.1.3 *Acetone* complying with BS 509.

2.2 Preparation of test specimens. Cut from the sample three test specimens, or, if the material under test is double-faced cut six test specimens, each 20 mm × 40 mm. Take test specimens so that they are evenly distributed across the full width of the sample but not within 200 mm of a selvedge.

2.3 Procedure. Heat the test specimens for 1 h at 65 °C to 70 °C in order to remove any residual solvents. Allow the test specimens to cool to room temperature. Examine each test specimen for evidence of cracks or holes and record the results. Fold each test specimen over the glass rod (see **2.1.2**) with the coating to be evaluated outermost. Secure the test specimen in place around the glass rod with a suitable clip. Immerse each test specimen in acetone (see **2.1.3**) at a temperature of 20 ± 2 °C for 15 min. Remove the test specimens from the acetone and examine the coating visually for signs of cracking or disintegration. Disregard any removal of lacquer or surface effects. Test separately each face of double-faced coated fabrics.

2.4 Expression of results. Record any new cracks or holes that have appeared in the test specimen.

2.5 Test report. The test report shall include the following particulars:

(a) the description of the coated fabric;

(b) the results of the test recorded in the following manner:

(1) if no signs of cracking or disintegration of the coating, report 'Fusion complete';

(2) if any new cracks or holes appear in the test specimen or there are signs of disintegration of the coating, report 'Fusion incomplete';

(c) details of any deviation from the standard test procedure.

3. Method 25B: determination of state of cure of vulcanized rubber coatings (subjective method)

3.1 Reagents and polymers. The reagent required for each polymer is given in table 1.

CAUTION. In carrying out this test, due notice should be taken of the potentially hazardous nature of the reagent used. Particular care should be taken to avoid contact with the eyes, and the use of eye protectors complying with BS 2092 is recommended.

3.2 Apparatus

3.2.1 *Graduated pipette*, 10 mL capacity.

3.2.2 *Watch glass*, 50 mm diameter.

3.2.3 *Stopwatch.*

3.2.4 *Filter paper*†.

3.3 Preparation of test specimens. Cut from the sample either three test specimens or, if the material under test is double-faced, six test specimens, each 100 mm x 100 mm. Take test specimens so that they are evenly distributed across the width of the sample but not within 200 mm of a selvedge.

3.4 Procedure. Where double texture fabrics are to be tested, remove sufficient of the surface textile to enable the test to be conducted. Ensure that the surface of the test specimen is free of dust. Apply 1.0 mL of the appropriate solvent given in table 1 to the centre of the test specimen, cover the solvent-covered area with a watch glass.

Ensure that the fingers are dry and free of foreign matter. After 120 s remove the watch glass and any residual solvent by means of a filter paper. Assess by touch the surface of the polymer for signs of tackiness.

3.5 Expression of results. Record any signs of tackiness of the surface of the polymer.

3.6 Test report. The test report shall include the following particulars:

(a) the description of the coated fabric;

(b) the results of the test recorded in the following manner:

(1) if no signs of tackiness are recorded report 'Cure satisfactory';

(2) if any signs of tackiness are recorded report 'Insufficiently cured';

(c) details of any deviation from the standard test procedure.

Table 1. Reagents and polymers

Polymer type	Reagent to be used	
	Chemical	To BS :
Natural rubber	Xylene	458/3*
Styrene-butadiene rubbers	Xylene	458/3*
Butadienes	Xylene	458/3*
Isoprenes	Xylene	458/3*
Ethylene/propylene	Xylene	458/3*
Chloroprenes	Xylene	458/3*
Butyls	Xylene	458/3*
Urethanes	Butanone	1940
Chlorosulphonated polyethylenes	Xylene	458/3*
PVC nitriles	Butanone	1940
Butadiene/Acrylonitriles	Butanone	1940

*BS 458/3 is contained in BS 135, 458, 805.

†Whatman No. 41 is suitable.

Publications referred to

BS 135, 458, 805	Specifications for benzene, xylenes and toluenes
BS 509	Acetone
BS 1940	Butanone (methyl ethyl ketone)
BS 2092	Industrial eye-protectors
ISO 6451*	Plastics coated fabrics — Polyvinyl chloride coatings — Rapid method of checking fusion

*Referred to in the foreword only.

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