

British Standard

Testing coated fabrics

Part 31. Method 34. Method for determination of resistance to scuffing and snagging

Essais des supports textiles revêtus

Partie 31. Méthode 34. Méthode de détermination de la résistance à l'usure et au pochage

Prüfung beschichteter Gewebe

Teil 31. Verfahren 34. Bestimmung der Abriebfestigkeit und der Zieheranfälligkeit

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

Foreword

During use coated fabrics are commonly subjected to rapid glancing blows or direct impacts against hard objects and surfaces. If the object is sharp or pointed, a cut or snag of the material may be caused. If the object is blunt, then rather more extensive, but perhaps less severe, abrasion or scuffing damage will be produced.

The present method simulates both types of damage, and it is envisaged that the method will prove relevant in the assessment of materials for such applications as shoe uppers, travel goods, protective clothing, buoyancy aids and inflatables.

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

1 Scope

This Part of BS 3424 describes a method for assessing the resistance of coated fabrics to damage by scuffing or snagging.

NOTE. The titles of the publications referred to in this standard are listed on page 7.

2 Definitions

For the purposes of this Part of BS 3424, the following definitions apply.

2.1 abrasion damage. Surface damage visible that is not composed of snag sites.

2.2 snag site. Damage consisting of penetrative damage of a limited extent, such as a cut, puncture or partial delamination.

2.3 snag/abrasion count. The probable number of snag/abrasion sites in the area of that part of the test piece being assessed. It is denoted as n (see 9.2).

3 Principle

The coated fabric to be tested is wrapped around and stuck to the curved surface of a short cylindrical steel bar. This test assembly is tumbled in a rotating drum containing granite chippings, causing an abrasive/scuffing action. The damage to the surface of the coated fabric is then assessed by comparison with a standard damage scale and by counting the sites of damage.

4 Apparatus

4.1 Drum abrasion/snag tester, consisting of a drum having an internal diameter of 254 ± 1 mm and an internal depth of 95 ± 1 mm. The drum rotates on its axis at a speed of 30 ± 2 r/min. The cylindrical wall of the drum is constructed of nylon and is not less than 25 mm thick. The front and back faces of the drum are of rubber 6 mm thick of hardness 74 ± 5 IRHD*. The rubber faces are supported on the outside by steel plates 1.6 mm thick. The front face of the drum is removable, to allow the drum to be loaded, and is held in place by three retaining bolts set at 120° relative to each other. To the cylindrical wall of the drum are fixed nine equally spaced stainless steel rods 95 mm long $\times$ 19 mm diameter, with their axes parallel to the drum axis. The drum backplate is a push fit onto its driving shaft and is held in place with a grub screw, allowing easy removal of the drum for loading. Beneath the drum is a removable tray to collect any spillage.

A timing device switches off the machine automatically after the completion of a preset test duration. A schematic illustration is shown in figure 1 and figure 2.

4.2 Cylindrical metal test bars, 50.8 mm long $\times$ 25.4 mm diameter with each end of the cylinder plugged with a rubber disc of hardness 97 IRHD, 25.4 mm diameter and approximately 1 mm thick, the exposed edge of the rubber disc being rounded to a radius of approximately 0.55 mm. The total mass of each bar, including the rubber end discs is 203 ± 3 g.

NOTE. Due to abrasive wear it is recommended that the rubber end discs are replaced when severely worn or damaged, this being necessary approximately every 20 h of testing.

4.3 Damage severity scales

4.3.1 Two 'standard damage' scales, for assessing the general severity of damage. One scale is black and one white; both are prepared from the same polyurethane coated fabric, but with black and white pigmentation respectively. Each scale consists of five test pieces of polyurethane coated fabric, graded from 1, showing little or very minor damage, to 5, showing severe damage.

4.3.2 Damage sites counting template, of translucent plastics material 83 mm $\times$ 51 mm covered with an opaque film and having 13 circular holes or cells each of area 0.5 cm^2 randomly spaced within a central rectangle of area 20 cm^2 , i.e. approximately 56 mm $\times$ 36 mm (see figure 3).

4.4 Granite chippings, of 6 mm to 20 mm pink granophyric monzonite.

4.5 Sieve, consisting of a perforated plate having 19.0 mm square holes, complying with BS 410.

4.6 Sieve, consisting of a perforated plate having 6.7 mm square holes, complying with BS 410.

5 Selection of test specimens

Cut two test specimens 83 mm $\times$ 51 mm from the longitudinal direction of the coated fabric and test two pieces 83 mm $\times$ 51 mm from the transverse direction of the coated fabric. Ensure that the specimens are as widely dispersed as possible within the sample, and that, as far as possible, no two test specimens contain the same longitudinal or transverse threads and are not taken within 50 mm of any selvage.

*International rubber hardness degrees.