

British Standard Methods of test for

## Footwear and footwear materials

Part 1. Adhesives

### Section 1.4 Heat activation life of adhesives

Méthodes d'essai des chaussures et des matériaux entrant dans leur confection

Partie 1. Adhésifs

Section 1.4 Vie d'activation thermique des adhésifs

Prüfverfahren für Fussbekleidung und Fussbekleidungswerkstoffe

Teil 1. Klebemittel

Abschnitt 1.4 Wärmeaktivierungs-Lebendauer von Klebemitteln

NOTE. It is recommended that this Section should be read in conjunction with the information in the General introduction to BS 5131, published separately.

#### 1. Scope

This Section describes a procedure for assessing the heat activation life of adhesives. It is applicable to any adherend/adhesive assembly which is to be bonded by heat activation methods, but is based primarily on the requirements for shoe sole attaching adhesives.

The heat activation life may be defined as 'the maximum time after adhesive application at which heat activation produces a satisfactory bond'. A satisfactory bond is defined in this context as one showing less than 10 % non-coalescence of the adhesive films when peel tested according to BS 5131 : Subsection 1.1.2.

#### 2. References

This Section refers to the following standards publications:

- BS 903 Methods of testing vulcanized rubber  
Part A26 Determination of hardness
- BS 5131 Methods of test for footwear and footwear materials  
Subsection 1.1.2 Resistance to peeling  
Subsection 1.1.3 Preparation of test assemblies for adhesion tests

#### 3. Principle

Adhesive is applied to sole and upper adherends and allowed to dry. A set of test assemblies is prepared for which the time interval between adhesive application and heat reactivation is varied, but the bond is made within a few seconds of activation.

The bonds obtained are assessed using the peel test and the longest time between adhesive application and heat reactivation which still produces an acceptably small amount of non-coalescence of the adhesive films is established. This time is the heat activation life of the adhesive.

#### 4. Test assemblies

**4.1 Choice of adherends.** The choice of adherends for the test assemblies depends on the type of adhesive, as follows.

(a) *Polyurethane adhesives.* The test assembly should normally comprise PVC-coated fabric upper material bonded to resin rubber soling material.

(b) *Chloroprene rubber (polychloroprene) adhesives.* The test assembly should normally comprise upper leather bonded to resin rubber soling material.

(c) *Other adhesives.* The test assembly should normally comprise adherends for which the adhesive is intended.

Whenever possible the types of adherend required in (a), (b) and (c) should meet the following specifications.

*Polyvinyl chloride (PVC)-coated upper material.* Smooth solid (i.e. non-cellular) PVC-coated woven cotton fabric of overall thickness  $1.2 \pm 0.2$  mm.

*Upper leather.* Double buffed, full chrome, pearl split upper leather, or a full chrome side leather from which the grain has been removed completely and uniformly by wire brushing roughing or by splitting. The thickness of the roughed or split leather should be  $1.5 \pm 0.2$  mm.