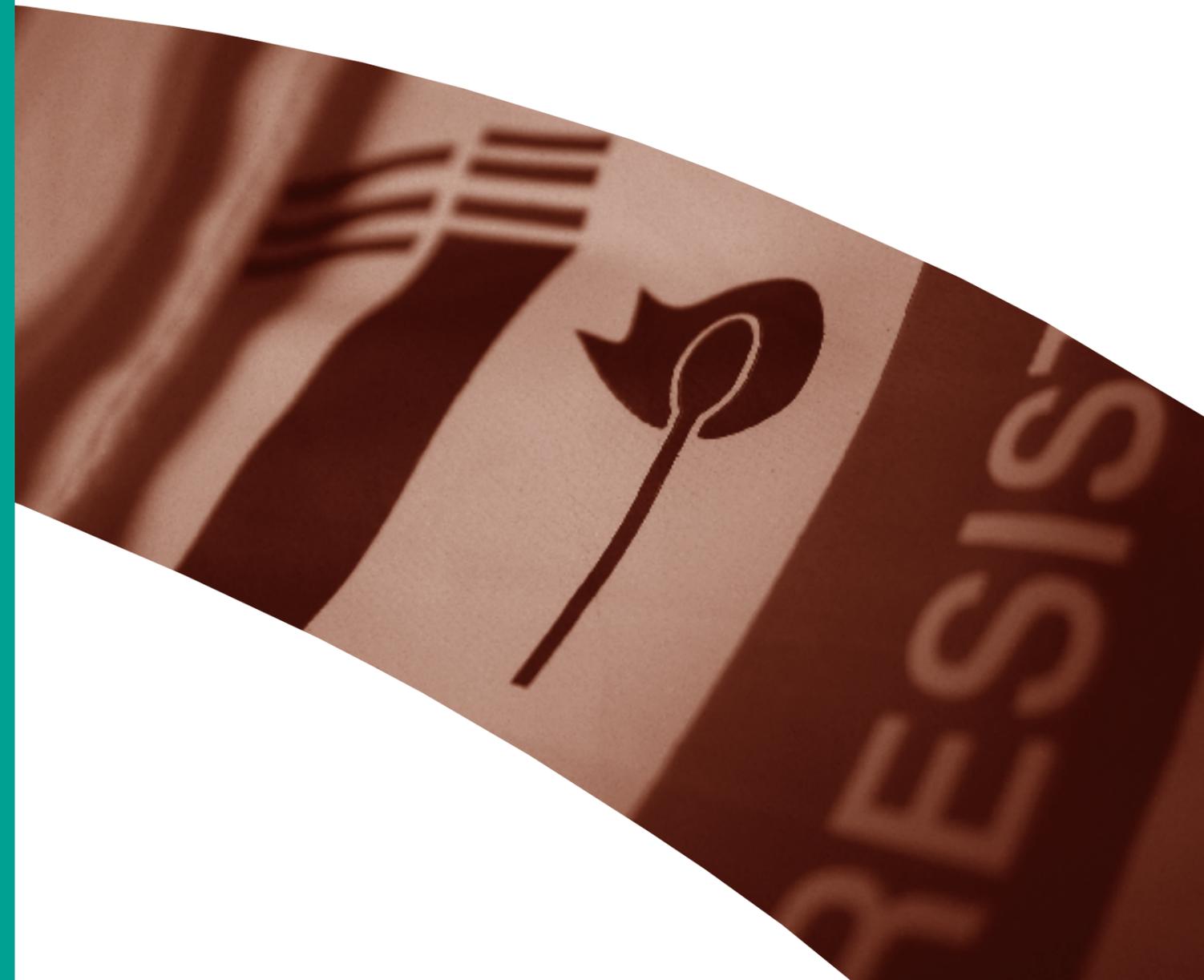


# Firecode – fire safety in the NHS Health Technical Memorandum 05-03: Operational provisions

*Part C: Textiles and furnishings*



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# **Firecode – Fire safety in the NHS**

## **Health Technical Memorandum**

### **05-03: Operational provisions**

#### **Part C: Textiles and furnishings**

*This document replaces Health Technical Memorandum 87*



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# Executive summary

## Scope and status

This Health Technical Memorandum sets out recommendations, advice and guidance for the purchase, use and donations of furniture and textiles in hospitals and other healthcare premises.

It should not be quoted as if it were a specification, and any claims of compliance should be carefully examined to ensure they are not misleading.

Any user of this Health Technical Memorandum is expected to be able to justify any course of action that deviates from the recommendations, including the using of alternative solutions.

Compliance with the Health Technical Memorandum cannot confer immunity from legal obligations. Attention is drawn to legal requirements in respect of planning and approval, and to the need to consult with appropriate bodies, which might include building control bodies and the fire and rescue authorities.

This Health Technical Memorandum replaces the guidance contained in the previous edition of Health Technical Memorandum 87 – ‘Textiles and furniture’, which was last published in 1999.

This guidance is also suitable for the independent healthcare sector.

## Major changes since the last edition

### General

The Department of the Environment (DoE Fire Branch) no longer exists, and the responsibilities of the branch now rest in part with both the Department for Communities and Local Government and the Building Research Establishment/Fire Research Station. Both the fire-retardant specification and the fire test specification have remained dormant for several years, and cannot now be considered extant on the basis that they have now been superseded by European technical standards.

## European legislation

The principal developments have been in the publication of a number of European Council regulations, directives, decisions and recommendations which have all had an impact on the content of this revision.

In accordance with its obligations under the Treaty of Rome, the UK Government has introduced the necessary national regulations to transpose the essential requirements into UK law. This revision recognises these provisions.

In particular, the General Product Safety Directive (2001/95/EC) has had the most significant impact on the recommendations contained in this Health Technical Memorandum. The implications of this directive are discussed, and the definitions of a “safe product”, “dangerous product” and “serious risk” are presented.

## Technical specifications

This Health Technical Memorandum also recognises the publication of a number of European technical specifications (ENs). Under the current rules of the European Standards body (CEN), the members (this includes the UK) are required to withdraw any conflicting national standard in favour of the EN. Within this document, reference is made to both British Standards and the European Standards.

**The National classifications do not directly equate with the equivalent classifications of the European Standard; therefore, products cannot typically assume a European class unless they have been tested accordingly.**

## Other developments

This Health Technical Memorandum also goes further than any previous version in that it recognises present Government policy in supporting areas such as:

- the Keymark (the CEN mark of conformity);
- the use of eco-labels in textile end-use applications;
- the application of certain flammability requirements for medical devices;

- the publication of a draft Standard by CEN covering textiles in the healthcare system; and
- the use of the CE Mark.

## Procurement policy

The Public Contracts Regulations 2006 provide that, subject to UK mandatory technical requirements, a contracting authority should define the technical specifications in the following order of preference:

- a. British standards transposing European Standards (that is, where a standard has been agreed across Europe and then subsequently adopted as a British Standard);
- b. European technical approvals;
- c. common technical specifications;
- d. international standards; or
- e. other technical reference systems established by the European standardisation bodies.

The above requirement is mandatory. It is only in the absence of any of the above standards (in order of preference) that British standards would apply.

Other than the requirements of the Public Contracts Regulations 2006 outlined above, there is no mandatory requirement to follow this guidance. However, it does represent best practice for the healthcare environment and the quoted standards should be regarded as the minimum to be applied.

## Structure

Section A on technical specifications provides the necessary technical information to ensure the appropriate codes of practice and standards can be selected.

Section B provides supporting information on various European product certification marks/schemes in use and details the requirements of the Medical Devices Directive (93/42/EEC) and General Product Safety Directive (2001/95/EC).

Appendix A contains a summary of the principal provisions of relevant European Council directives, decisions and recommendations.

Appendix B contains comments on the principal technical standards covering textiles and fire safety.

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# 1 Introduction

## Terminology

1.1 Throughout this document, in common with other guidance available, the terms “hazard” and “risk” are frequently used. It is appropriate that these two terms are defined to prevent any misunderstanding:

- a **hazard** is something that has the potential to cause harm;
- a **risk** is the chance, high or low, of that harm occurring.

1.2 In addition, the term “fire precautions” includes matters which may be the subject of legal requirements. This may be under specific national fire precautions legislation covering health and safety in any of the member states.

1.3 Various references are also made to the several kinds of legal instrument available to the European Commission:

- **Regulations:** these are directly enforceable laws, applicable and binding on member states, and consequently have force even without subsequent domestic legislation.
- **Directives:** these are also legally binding and are addressed to member states. They lay down the intended results of legislation, leaving it to the individual member states as to how these are to be achieved. A directive is the instrument which is most commonly encountered. It is the member states’ only means of action for achieving an approximation of laws and also freedom of establishment, freedom to provide services and free movement of capital. It is the main source of EU law in relation to health and safety (including fire safety).
- **Decisions:** these are addressed to member states or to an individual or legal entity (for example a company) and are binding to the addressee. They are particularly useful in the enforcement of competition policy.

- **Recommendations and opinions:** these are not legally binding but do have considerable political influence.

## General

1.4 Fire statistics show us that in terms of unwanted fires in the healthcare estate, it is often a textile or textile-based material that is the item first ignited. Textiles are often easy to ignite and burn rapidly (especially in a vertical orientation) unless they are inherently flame-retardant or have been treated with a chemical flame-retardant.

1.5 This Health Technical Memorandum sets out recommendations, advice and guidance for the purchase, use and donations of furniture and textiles in hospitals and other healthcare premises. It supersedes the existing guidance contained in Health Technical Memorandum 87 – ‘Textiles and furniture’ last published in 1999.

## The aim of fire safety

1.6 The principal aim of fire safety must always be to ensure that people have sufficient time to escape before the fire grows to life-threatening proportions and before the stability of the building is put at risk. The time available for escape must always be longer than the time required for escape.

- The time **available** for escape can be increased by protecting vulnerable exit routes through physical means and the careful selection of the contents.
- The time **required** for escape can be reduced by limiting or controlling the fire behaviour of the combustible contents.

1.7 Such activities are usually referred to as “fire safety engineering”.

## Fire safety measures for the whole hospital

- 1.8 The primary remit of healthcare organisations with regard to fire safety has always been the safety of patients, visitors and staff. Since the publication of the last revision of Health Technical Memorandum 87 in 1999, the UK – in complying with the essential requirements of the Framework (89/391/EEC) and Workplace (89/654/EEC) Directives – introduced the Fire Precautions (Workplace) Regulations in 1998 (as amended), which have now been replaced by The Regulatory Reform (Fire Safety) Order 2005. These regulations (and therefore the Order) require the healthcare organisation to be in possession of an assessment of the fire risk. The guidance contained in this document will provide part of the information necessary to complete this assessment.
- 1.9 Healthcare organisations will need to select and effectively implement a combination of measures to achieve an acceptable level of fire safety, taking the following into account:
- the guidance in this Health Technical Memorandum;
  - the relevant guidance contained in other parts of Firecode;
  - all relevant legislation and statutes;
  - the advice of the local authority fire authority;
  - the advice of staff in the healthcare organisation (estates staff, fire safety adviser etc).
- 1.10 Products and materials that are in accordance with harmonised European technical standards provide an assumption of conformity for manufacturers who are able to claim compliance without the need for any further testing. Healthcare organisations are therefore able to ensure a consistent level of safety by providing products and materials that are considered “safe” within the definition provided by the General Products Safety Directive (2001/95/EC) (see paragraphs 14.6–14.9).

## The use of standards for fire safety

- 1.11 The improvement of fire safety has been the main priority in fire safety legislation. This principle has been extrapolated into the fire safety objectives of the European Commission.

## European Union legislation

- 1.12 The publication of a number of EC directives has had an impact on the fire safety measures presented in this Health Technical Memorandum:
- the Framework (89/391/EEC) and Workplace (89/654/EEC) Directives introduce a requirement for an assessment of the risk from fire to be completed in all places of work;
  - the Construction Products (89/106/EEC) Directive provides performance requirements applicable to textile floor coverings, which are included in the scope of this Health Technical Memorandum;
  - the General Products Safety Directive (2001/95/EC) (see Chapter 14) and the Medical Devices Directive (93/42/EEC) (see Chapter 15) both apply certain provisions to some of the items covered by this Health Technical Memorandum.
- 1.13 Explicit in the Treaty of Rome is the duty of member states to effect the approximation of the laws, regulations and administrative procedures to give national substance to the essential requirements imposed by these directives.
- 1.14 Each member state will therefore have enacted national legislation imposing the essential requirements contained in the directives.

## Technical standards

Guidance was provided on the recommended fire behaviour of textiles and furniture in Health Technical Memorandum 87, first published in 1989. Appendix 1 of this document recognised the publication of a number of technical specifications by the British Standards Institution and the advice as to the recommended performance was based on those testing methods.

In the revision of Health Technical Memorandum 87 in 1993, the opportunity was taken to revise the list of technical specifications; in addition, reference was made to the increasing activity in both the Commission and the European Standards Body (CEN).

- 1.15 Standardisation activity at the European level (that is, in CEN) has led to the publication of technical standards, many of them “harmonised”, which means that under the current rules of CEN membership, the UK (and all other members of

- CEN) have to withdraw any conflicting national standard.
- 1.16 European standards are a powerful means of enhancing the competitiveness of enterprises in the EU. They can help to protect health, safety and the environment of Europe's citizens. They offer technical solutions to problems, and facilitate trade and cooperation across the European Community. They can improve the effectiveness of important Community policies on consumer welfare, environmental protection, trade and the single market.
- 1.17 Standards also play a useful role in helping to create the single market by supporting a series of laws called "new approach directives" (as in the case of the Medical Devices Directive (93/42/EEC) and the General Products Safety Directive (2001/95/EC)). These European-wide directives set out the essential requirements that products need to meet before they may be sold across the whole of the European Union.
- 1.18 "New approach directives" are special in that they do not contain technical detail; they contain broad requirements. Manufacturers and specifiers therefore need to translate these broad "essential requirements" into technical solutions. One of the best ways that manufacturers and specifiers can do this is to use specially developed European standards. These standards are called harmonised standards (hEN) and they are said to give a "presumption of conformity" with the directive for which they have been written (visit the following website for further information: [www.newapproach.eu/](http://www.newapproach.eu/)).
- 1.19 The European Commission (the Directorate-General for Health and Consumer Protection) is currently assessing the third group of existing standards with a view to possible publication of their references in the Official Journal of the European Union (OJEU).<sup>1</sup> The Commission Services is currently considering which of the available standards fulfil the conditions required for such publication. The publication confers a particular status in that a product shall be deemed "safe" (as far as risks and risk categories covered by relevant national standards are concerned) when it conforms to voluntary national standards transposing European standards, the references to which have been published by the Commission in the OJEU.
- 1.20 Many of the technical standards covered by this document are being considered as part of the consultation exercise under the provisions of the General Products Safety Directive (2001/95/EC). On that basis alone – the fact that such technical standards exist – manufacturers and specifiers in Europe will already be utilising the provisions of such technical standards to test their products (or will be wishing to) and will therefore seek to express the results in the terms provided to support their claims that their products are "safe" within the definition provided in the directive.
- 1.21 A list of appropriate technical standards is provided in **Appendices B and C**.

---

<sup>1</sup> With effect from 1 February 2003, the *Official Journal of the European Communities (OJEC)* changed its name to the *Official Journal of the European Union (OJEU)*



# Section A – Technical specifications

## 2 General comments

### Scope

2.1 This Health Technical Memorandum identifies non-building materials which, when used by themselves or in conjunction with others, are less easily ignited and have a low rate of flame spread, so that in the event of fire, if not prevented altogether it is at least delayed.

### Medical Devices Regulations 2002 and the Medical Devices (Amendment) Regulations 2003

2.2 These regulations, made to fulfil the UK's obligations under the Medical Devices Directive (93/42/EEC), may apply to some of the items covered by this Health Technical Memorandum where they are classified as medical devices. There are no specific essential requirements for fire safety in the directive (and therefore in the regulations).

2.3 Contained in Clause 7.1 of Annex 1 to the directive is the general requirement that, in the design of the medical device, particular attention must be paid to “the choice of materials used, particularly as regards to toxicity and, where appropriate, flammability”.

2.4 The recommendation in this Health Technical Memorandum as regards fire behaviour performance is considered applicable to all such products, whether or not they are classified as medical devices.

### Performance

2.5 Guidance is provided on standards of flammability performance for resistance to ignition by specified ignition sources and subsequent surface spread of flame or surface flash.

2.6 As the methods of test for the fire behaviour aspects of textiles and textile products and textile-related products may be the same, whatever the occupancy or end use, the only variation will be the related performance recommended.

2.7 The guidance given in this Health Technical Memorandum is relevant to any healthcare facility where patients receive treatment or care. The recommendations particularly apply to acute healthcare (for example hospitals), primary care (for example health centres, clinics, treatment centres etc) and specialist healthcare facilities (for example mental health trusts).

2.8 The use of these recommendations in community home settings (those covered by Health Technical Memorandum 88 – ‘Fire precautions in housing providing NHS-supported living in the community’) may be regarded as optional, as such premises will usually comprise private dwellings with between two and five clients living together with or without NHS carer support. As such premises are more closely related to a private dwelling, the provision of items complying with these recommendations cannot be mandatory. However, those responsible may wish to complete an assessment of the risk, taking into account the abilities or characteristics of the occupants. The use of items meeting these recommended performance levels may be deemed as necessary to reduce the perceived risk.

2.9 The guidance may be relevant to those premises or parts of buildings referred to as “patient hotels”. All such premises or parts of premises will contain many of the items covered by this Health Technical Memorandum, and healthcare organisations may consider that the methods of test and related performance requirements in this document are appropriate for patient hotels. Some adjustment to the performance levels recommended here may be desirable.

2.10 The provisions contained in this Health Technical Memorandum recognise those contained in Health Technical Memorandum 05-01 – ‘Managing healthcare fire safety’.

## Fire safety in healthcare premises

- 2.11 The Department for Communities and Local Government's (DCLG) 'Fire safety risk assessment – healthcare premises' provides guidance on fire risk assessments in all healthcare premises. It has been produced in support of the Regulatory Reform (Fire Safety) Order 2005. Fire risk assessments using the guidance in the document are required to comply with the provisions of the Regulatory Reform (Fire Safety) Order 2005, and required that the organisation/employer be in possession of an assessment of the fire risk.
- 2.12 In the specific case of those areas of a healthcare facility to which patients have access either with or without supervision, they include all areas containing escape routes used by patients.
- 2.13 It is becoming increasingly common for large sections of the hospital to now be devoted to commercial enterprises, usually under the control of organisations other than the healthcare trust. Such enterprises can introduce risks/hazards into the hospital area and are subject to other guidance (see Health Technical Memorandum 05-03: Part D – 'Commercial enterprises on healthcare premises' (formerly 'Fire Practice Note 5')). Given the wide-ranging occupancies of such enterprises, it is considered appropriate for the performance criteria for products covered by this Health Technical Memorandum to be also applied to those products provided in all such commercial enterprises (see paragraphs 4.6–4.8).
- 2.14 Within this document, the references to "high risk" or "high hazard" refer to furniture and furnishings used in accommodation for the following groups:
- the elderly;
  - people with learning difficulties;
  - young people with disabilities;
  - medium secure and secure premises for people with mental health problems.
- 2.15 The standards referenced within this document may not be high enough for those areas where NHS patients are being cared for in premises managed by the National Offender Management Service (NOMS). Additional guidance should be sought from NOMS for these premises.

## 3 Burning of textiles

### General

- 3.1 Flammable textile materials are readily decomposed by the application of heat. Because they are mostly used in the form of thin sheets, they can be ignited by short contact with a small ignition source, and burning spreads rapidly. Materials which form gaseous decomposition products tend to burn upwards with a flame which increases in speed and intensity. The material tends to burn away completely, exposing any underlying material. The heat from burning textile materials may also act as a secondary ignition source which can ignite other materials which may not have ignited with the initial small ignition source.
- 3.2 Burning apparel fabrics will usually produce sufficient heat to cause severe skin burns. Some of these materials may be thermoplastic and melt on the application of heat. If the material forms a hole, it exposes the underlying material to the effect of the primary ignition source. Molten drops may separate and fall down from the material; if these drops are flaming, they may ignite other materials.
- 3.3 The main hazard from burning textile materials arises from the build-up and transfer of heat. In the case of apparel, large areas of the skin can be damaged if clothing is ignited by a small ignition source, such as a match flame. In the case of furnishing fabrics the heat could be transferred to other materials, enabling a small ignition source to develop into a major fire. The combustion products of all materials are toxic and irritating, and when large quantities of material burn in a confined space the atmosphere becomes lethal. Some textile materials are more flammable than others. Attempts have been made to classify the flammability behaviour of textiles by fibre type.
- 3.4 However, the actual classification may depend on other factors related either to the test procedure or to the fabric construction. The choice of flammability test conditions and performance levels can influence the classification. Burning behaviour is influenced by the position and intensity of the ignition source, the availability of oxygen supply, and the test specimen orientation in the test employed.
- 3.5 The performance levels set and the terms used to describe the different classes may therefore not be consistent from one standard to another. Fabric factors which affect flammability include fabric weight and surface construction. In general, the lighter the weight of the material, the more easily it is ignited and the more rapidly it burns. Thus, different weights of cotton and thermoplastic fibres, for instance, can be rated as slow-burning, flammable, or highly flammable.
- 3.6 Pile fabrics and those with a brushed or raised surface tend to burn very rapidly. If the base fabric burns at a high speed, the material may be considered as unsuitable for apparel use. If the material exhibits surface flash, defined as rapid spread of flame over the surface of a material without ignition of its basic structure, the flame is usually so weak that it is unlikely to cause any burning damage.
- 3.7 Materials which surface-flash may be used for apparel, but they should be kept away from sources of flame.
- 3.8 Thermoplastic fibres, which melt on the application of a flame, may not ignite or may give only limited flame spread. However, thermoplastic fibres melt and expose the skin, which can cause contact-burn injury or ignite other underlying materials. They are liable to give very erratic burning behaviour but normally are classed as of low or reduced flammability.
- 3.9 The burning behaviour of fabrics made from blends of fibres, or of composites made from different materials, cannot be predicted from tests of the separate materials. In particular, thermoplastic fibres burn more readily if supported by non-melting materials which provide a so-called scaffold effect. The flammability of various fibre types can be modified by the presence of certain textile finishes (anti-soil, anti-crease, easy-iron).

- 3.10 Flame-retardant treatments are used to reduce flammability, but other treatments or finishes may increase flammability. Grease and soil acquired during use can also affect the flammability properties, as can the cleansing procedures used to remove them. Fibres which give only restricted flame spread are normally divided into two types:
- a. inherently flame-retardant fibres in which the properties are a feature of the fibre structure;
  - b. flame-retardant-treated fibres which contain a flame-retardant which is added at the fibre extrusion or fabric finishing stage.
- 3.11 Special fibres have been developed which not only restrict the spread of flame but resist decomposition on contact with flame, and these are mainly used for specialist protective clothing and equipment.

## 4 Furniture

### General

- 4.1 This chapter deals with furniture in wards and other hospital or healthcare areas to which patients may have access. It also deals with staff and public areas (including those areas occupied by commercial undertakings on healthcare premises) whether or not patients have access.
- 4.2 Upholstered furniture and furnishings intended for domestic use in a dwelling currently have to meet levels of ignition resistance set by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended). The fire-safety standards recommended in this Health Technical Memorandum for furniture in healthcare premises provide, at least, the same fire-safety standards as these regulations.
- 4.3 In achieving the performance levels recommended here, chemical flame-retardant treatments may be used. A degree of controversy surrounds the use of such chemicals, but it is generally considered that the advantages of the improved performance they provide far outweigh any disadvantages. The question of suitable treatments and the required durability is dealt with in [Chapter 11](#).
- 4.4 Most of the items covered in this chapter will be subjected to heavy use in their normal life. Wear and tear will inevitably lead to cover fabrics on furniture in particular being worn/torn, thus exposing the filling materials. Unfortunately, in certain areas such as waiting rooms they may also be subjected to a degree of malicious damage.
- 4.5 If the cover fabric is damaged and the filling material is exposed, they should be repaired as soon as possible. This is particularly the case where the seating is built-in. Any individual piece of furniture should be withdrawn from use until repairs can be made.

### Commercial enterprises on hospital premises

- 4.6 While the provisions of Health Technical Memorandum 05-03: Part D – ‘Commercial enterprises on hospital premises’ cover the general fire safety measures of these types of premises, the extent of such facilities has increased significantly in recent years. In many hospitals today, the nature of commercial enterprises is extensive and often centred on the provision of refreshments. In some major hospitals, large areas are dedicated to this service and will therefore contain upholstered seating and other textiles in the form of floor coverings, curtains and drapes to create an attractive ambience.
- 4.7 Where such premises exist, the healthcare organisation should impose on the service provider the same fire behaviour requirements on all such items as they would accept if they had direct control or were providing the items themselves.
- 4.8 The recommendations contained in this Health Technical Memorandum are therefore considered appropriate for **all** such items used in healthcare premises.

### Storage furniture

- 4.9 This type of furniture is usually made of wood or from wood-based products such as particleboard and is relatively difficult to ignite. However, it can contribute significantly to a fire once it is ignited, possibly by being adjacent to burning textiles such as curtains or drapes. Care taken with both the amount of such furniture used and its positioning can reduce this possibility.

### Fixed or mobile screens

- 4.10 Greater privacy may be provided for patients in areas such as multi-bed wards or treatment areas by the provision of screens or carcass furniture. Fire spread over such surfaces is controlled by providing materials or products that meet a given

performance level in tests appropriate to the materials or products involved.

- 4.11 As these screens or furniture may be considered to be related to lining materials, they should meet the same classification of performance. The national performance ratings of such materials or products are listed in Approved Document B of the Building Regulations. The performance given is in accordance with BS EN 13501-1.
- 4.12 The Department for Communities and Local Government, in transposing the performance levels of the Euroclass System (see Commission Decision 2000/147/EC as amended by Commission Decision 2003/632/EC) for Building Regulation purposes, now equates Class 0 with Euroclass B. It is recommended that all such products should now be classified to this Euroclass performance

## Bedsteads

- 4.13 All-metal bedsteads, of which the King's Fund type is the most common, will not present a fire hazard.
- 4.14 There may be local circumstances where a more homely environment is desirable and bedsteads of solid timber, for example, are provided. In such circumstances, the recommendations given in [paragraph 4.9](#) in respect of storage furniture should be observed.

## Upholstered furniture – general

- 4.15 The upholstered elements of upholstered furniture (this includes seating, mattresses, divans, bed-bases and similar items) are considered to be a substantial risk in terms of fire. Regulations in the UK have consistently imposed basic requirements in terms of their resistance to ignition. Studies have shown that compliance with these regulations has been directly responsible for saving many lives and preventing many injuries.
- 4.16 For the purposes of the regulations, upholstered furniture is defined as seating furniture (including children's furniture) as well as upholstered articles such as stools, pouffes, beanbags and floor cushions.
- 4.17 Recommendations on the performance of such items of furniture are contained in two British Standards:
- BS 7176 – 'Specification for resistance to ignition of upholstered furniture for non-domestic seating by testing composites';

- BS 7177 – 'Specification for resistance to ignition of mattresses, divans and bed bases'.

- 4.18 While the recommendations contained in these two British Standards apply to hospitals and other healthcare premises, the guidance contained in this document extends, in part, these recommendations.
- 4.19 Studies conducted in the UK before the introduction of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) showed that the principal hazard presented by upholstered furniture was in the cellular foam fillings commonly used. On that basis, Part 1 of Schedule 1 to the regulations contained an ignitability test for polyurethane foam in slab or cushion form. All the following performance levels recommended in this Health Technical Memorandum, in terms of ignitability, are made on the assumption that the filling materials will also comply with the stated requirements of the 1988 Regulations.

## Divans and upholstered bed-bases

- 4.20 There has been some discussion about classifying bed mattresses as medical devices. The argument is that, as medical devices, such items are not covered by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended). For further comments on this discussion, see [paragraphs 15.7–15.10](#).
- 4.21 The performance requirements given in the 1999 edition of Health Technical Memorandum 87 in respect of upholstered furniture and mattresses, divans and bed-bases have now been partially superseded by the publication of European standards. These have been recognised by amendments to BS 7177.
- 4.22 BS 7177 (see [Table 1](#)) gives the recommended performance requirements for mattresses, bed-bases and divans and also provides advice on the application of hazard categories.

In the 1999 edition of Health Technical Memorandum 87, clause 6.19 referred to BS 7177 with the comment that the requirements of the Health Technical Memorandum are more than covered by BS 7177.

- 4.23 Any cellular foam used in divans or upholstered bed-bases, including padded headboards, should be capable of meeting the flammability requirements of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 applied to all such products.

The Regulations also apply to furniture which is designed to be used as seating furniture as well as a bed. All parts of convertible furniture in which the seating also provides the sleeping surface should be capable of meeting the filling-material and cover-fabric requirements of the Regulations.

- 4.24 In the case of BS 7177, hospitals are classified as medium or high hazard but with an additional category of “very high hazard”, covering accommodation in certain hospital wards (for example, secure psychiatric units/wards). The performance recommended in such applications is the same as for “high risk” but allows for additional tests to be required by the specifier. The need for an increased level of performance in very high hazard areas can only be established by a local risk assessment.
- 4.25 The higher-intensity ignition source deemed necessary by this Health Technical Memorandum – that of BS 6807 ignition source 5 (20 g of newspaper equivalent) and ignition source 7 (100 g newspaper equivalent) – is not yet available as either a European or an international technical specification.

## Upholstered furniture

- 4.26 Any item of furniture with an upholstered element (such as easy chairs and sofas, dining chairs, office chairs, typists’ chairs and built-in furniture in

waiting rooms) may present a risk because of the nature of the materials used in the manufacture.

- 4.27 The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) provide for a basic level of resistance to ignition to be applied to upholstered furniture. In addition, the Regulations contain a requirement for filling materials to be evaluated in a standardised manner for mass loss. It is considered inappropriate for upholstered furniture used in healthcare premises to be of a lower standard than that imposed on domestic upholstered furniture.
- 4.28 Table 1 in BS 7176 gives the recommended performance requirements for upholstered furniture and provides advice on the application of hazard categories. Hospitals are classified as medium risk, with the qualification that sleeping accommodation in certain hospitals might be classified as high hazard. The performance requirements suggested by BS 7176 are given in Table 2.
- 4.29 The higher-intensity ignition source deemed necessary by this Health Technical Memorandum – that of BS 5852 ignition source 5 (20 g of newspaper equivalent) and ignition source 7 (100 g of newspaper equivalent) – is not yet available as either a European or an international technical specification.

**Table 1 Mattresses, divans and bed-bases**

Medium risk		High risk	
British Standard	European Standard	British Standard	European Standard
BS 7177 Resistant to ignition source 5 in section 2 of BS 6807.	Resistant to ignition source: Smouldering cigarette of BS EN 597-1.  Resistant to ignition source: Match flame equivalent of BS EN 597-2.	BS 7177 Resistant to ignition source 7 in section 2 of BS 6807.	Resistant to ignition source: Smouldering cigarette of BS EN 597-1.  Resistant to ignition source: Match flame equivalent of BS EN 597-2.

**Table 2 Upholstered furniture**

Medium hazard		High hazard	
British Standard	European Standard	British Standard	European Standard
BS 7176 ignition source 0 and 5 Resistant to ignition source 5 in Part D of BS 5852.	Resistant to ignition source: Smouldering cigarette of BS EN 1021-1.  Resistant to ignition source: Match flame equivalent of BS EN 1021-2.	BS 7176 ignition source 7 Resistant to ignition source 7 in Part D of BS 5852.	Resistant to ignition source: Smouldering cigarette of BS EN 1021-1.  Resistant to ignition source: Match flame equivalent of BS EN 1021-2.

## Wheelchairs

- 4.30 The resistance to ignition of the upholstered parts of wheelchairs is covered by BS ISO 7176-16, which contains requirements and test methods. It cites ISO 8191-1&2 as the appropriate method of test, but neither of these two technical specifications have been taken up as British Standards.
- 4.31 Healthcare organisations may wish to consider this particular aspect, as in some cases the upholstered parts of a wheelchair can be substantial and it would be clearly undesirable for these parts to be ignitable by smokers' materials.
- 4.32 It would be appropriate for such upholstered parts to be considered as upholstered furniture, and for the test standard and associated performance required of upholstered furniture to be applied to wheelchairs.

## Scatter cushions and seat pads

- 4.33 The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) apply to the filling material of cushions and pads supplied for use on the seats of wooden chairs. The regulations also apply in the case where a non-foam (fibre) filling is used; either the filling or the primary cover must meet the provisions of the regulations.

## Removable, loose or stretch covers

- 4.34 Removable covers which are supplied with the furniture are regarded as permanent covers for the purposes of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended). If such furniture is provided, the cover forms part of the overall fire performance characteristics of the piece of furniture. If such covers are removed, the furniture may not be capable of meeting the stipulated performance in respect of ignition. It would therefore be necessary to remove from use any such furniture while the removable cover was being cleaned or repaired. Their use is therefore not recommended.
- 4.35 While not generally recommended, if there is a positive need for loose or stretch covers, these should be capable of meeting BS 5852 ignition

source 1 or BS EN 1021-2 when tested over a standard grade of polyurethane foam as required by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

## Furniture in mobile vehicles

- 4.36 It is now common for healthcare organisations to provide a mobile service, taking healthcare to users in the community for health screening etc. This may be in the form of a specially adapted vehicle or purpose-built trailer. The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) apply to upholstered furniture (including beds) supplied with new caravans. It is unlikely that a commercially available caravan would be used for this purpose, but the contents (beds, upholstered furniture, curtains and drapes etc) of such purpose-built mobile vehicles/trailers used by the healthcare organisation should comply with all the appropriate recommendations of this Health Technical Memorandum.

## Polypropylene (hard-backed) chairs

- 4.37 It is recommended that where polypropylene chairs are purchased, FR (fire-resistant) polypropylene shells should be specified.

## Totally soft play environments

- 4.38 Although not furniture as such, where they are provided either as play areas for young children or as a recreation/treatment facility for adults with a disability, care needs to be taken. Large pits filled with foam off-cuts should be avoided, as should the use of raw (uncovered) foam. Cellular foam should be of the combustion-modified type, capable of meeting the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

## Upholstered garden furniture

- 4.39 Where such furniture is provided, there is always the possibility that it will be brought into the hospital and used as temporary seating. Such furniture is covered by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

## 5 Furnishings

### General

5.1 In achieving the performance levels recommended here, chemical flame-retardant treatments may be used. The question of suitable treatments and the required durability is dealt with in [Chapter 11](#).

### Curtains and drapes

5.2 Curtains and drapes can be considered a significant fire risk/hazard. Textile materials in the vertical orientation may burn rapidly with increasing speed as the flame spreads up and across the vertical surface. Fabrics of a lightweight construction (including nets at windows to provide privacy) may present an increased hazard, as might curtains that comprise more than a single layer. Where curtains comprise more than one layer, it cannot be assumed that the performance of the composite can be predicted from tests on the individual layers.

5.3 Curtains and drapes used in ward areas and public rooms/areas are often substantial in terms of their make-up (sometimes incorporating a light-proof lining etc) and size; therefore, they provide a substantial fire load. Although the anticipated ignition source may be smokers' materials, given their position and configuration, it is more likely that they will be exposed to secondary ignition sources such as a burning waste-paper basket or other small item.

5.4 Curtains and drapes with "Type B" fabric should be provided as the minimum standard. In higher risk areas, "Type C" fabric should be used. On this basis, curtains and drapes should meet the test method of BS 5438 or BS 5867.

5.5 Where products are tested to the European Standards, they should be capable of resisting ignition from larger ignition sources and should be tested in accordance with EN 1101 (detailed procedure to determine the ignitability of vertically oriented specimens (small flame)) and EN 13772 (measurement of flame spread of vertically oriented specimens with a large ignition source). This standard (EN 13772) is a refinement of the test specification contained in EN ISO 6941 in that the test procedure has been modified with a radiator which radiates on the lower part of the specimen. The combination of this radiation and the small flame application simulates the action from a larger flaming source, for example a burning waste-paper basket.

#### Note

It is recognised that by citing both EN and British Standards, there may be room for confusion. In terms of hierarchy, the EN standards sit on a "higher plane" than the British Standards. However, the British Standard is a more rigorous standard in respect of durability; that is, the requirement for flame retardancy to be maintained after 50 washes for reusable products. This higher durability should be given due cognisance in the selection of suitable fabrics.

5.6 Linked to this technical testing standard, EN 13773 provides a classification scheme for fabrics for curtains and drapes when tested in accordance with EN 1101 for ignition and EN 13772 for spread of flame (see Table 3).

**Table 3 European classes**

Class	Ignitability	Flame spread
1	Non ignition according to EN 1101	First marker thread not severed, no flaming debris according to EN 13772
2	Non ignition according to EN 1101	Third marker thread not severed, no flaming debris according to EN 13772
3	Non ignition according to EN 1101	Third marker thread not severed, and/or flaming debris according to EN 13772
4	Ignition according to EN 1101	Third marker thread not severed, no flaming debris according to EN 1102
5	Ignition according to EN 1101	Third marker thread not severed, and/or flaming debris according to EN 1102

- 5.7 The test sample for both tests should be representative of the materials as used in the complete curtain or drape, for example multi-layered if used in practice. The test sample should be subjected to the cleansing procedure as detailed.
- 5.8 When the sample is tested in accordance with EN 1101, ignition – as defined in the standard – should not occur. When tested in accordance with EN 13772, the first marker thread should not be severed and there should be no flaming debris. This performance is stated as Class 1 in accordance with EN 13773.

## Blinds

- 5.9 Blinds will normally be made of lighter materials than are curtains. They may be either roller blinds or vertical/ horizontal strip blinds. While the test standard applied to curtains and drapes is deemed to be appropriate, the performance requirement is considered too onerous.
- 5.10 Textile or roller blinds should conform to BS 5867-2 fabric type B. The appropriate classification, when tested in accordance with EN 1101 and EN 13772, should be Class 2 in accordance with EN 13773.

## Curtain heading tapes

- 5.11 These are available in flame-retardant fabrics and should be used wherever possible.

## Textile floor coverings

- 5.12 Textile floor coverings present a low risk of fire. The performance of such floor coverings is determined by EN 9239, and while such floor coverings in healthcare premises are acknowledged as being of low risk, it is still considered appropriate that they should demonstrate a degree of resistance to fire.
- 5.13 Care should be taken when specifying floor coverings to this specification, as the test results obtained by testing the floor covering as a carpet tile cannot be taken as an indicator of the same performance if the same floor covering is in roll form. The test certificate should specifically cover the intended supply format and, if it is to be in the form of carpet tiles, the number and orientation of the joins in the tiles should be stipulated.
- 5.14 As floor coverings fall within the scope of the Construction Products Directive (89/106/EEC),

they are covered by Commission Decision 2000/367/EC as amended by Commission Decision 2003/629/EC. The UK has applied a fire behaviour requirement to them in their specific application and their use on escape routes and staircases in public buildings. It is therefore appropriate that the same classification should be applied to healthcare premises.

- 5.15 When tested in accordance with the provisions of EN 9239-1, textile floor coverings should be capable of providing a classification of EFL-s2.
- 5.16 It is becoming common for textile floor coverings to be used in other applications for which they were not originally intended. A soft floor covering used as a wall lining (sometimes in a lift) is often provided to create ambience or a specific effect. It should be borne in mind that the fire behaviour and performance of floor coverings has been established with the sample in the orientation of its expected use, for example horizontal. **The placing of floor coverings of the required standard in a vertical plane cannot therefore be considered acceptable.**
- 5.17 The use of floor coverings as wall linings is therefore not permitted.

## Soft toys

- 5.18 On children's wards, there will likely be a large number of soft toys. All children's toys in the UK are subject to regulations which specify tests for ignition and surface spread of flame. All commercially-produced toys (soft toys, toys which a child can enter, and disguise costumes etc) will therefore comply with these requirements.
- 5.19 It is possible that well-intentioned organisations or individuals will wish to donate home-made toys to the children, and this can present difficulties. The materials used in the manufacture of such toys might not be capable of meeting the required performance. There is no way of establishing such compliance without testing, which is, of course, destructive.
- 5.20 However well-intentioned, the risk/hazard introduced into an otherwise carefully controlled environment is unacceptable. Such donations should therefore be viewed with caution and discouraged.

## 6 Bed assemblies

### General

- 6.1 This chapter deals with textile bedding items used on hospital wards and other healthcare areas used by patients. It covers several different products that may be found as part of a typical bed assembly in a healthcare environment. By their nature and use, some of these items (for example pressure-relief products) may be classified as medical devices. While covered by the provisions of the Medical Devices Directive (93/42/EEC) (see [Chapter 15](#)) and therefore the Medical Devices Regulations 2002 (see [paragraphs 2.2–2.4](#)), their specific performance in respect of fire behaviour should be in accordance with the recommendations contained here.
- 6.2 Care should be taken with the desired performance of bedding items where they are used in oxygen- or nitrous-oxide-enriched atmospheres. Health Technical Memorandum 05-03: Part A – ‘General fire precautions’ contains additional guidance.
- 6.3 Standards for the testing of mattresses, upholstered divans and upholstered bed-bases are contained in EN 597-1 and EN 597-2 (see [paragraphs 4.20–4.25](#)). In addition, separate standards covering the testing of items of bedding are provided in BS EN ISO 12952.
- 6.4 Where the total make up of the bed (that is, bed-base, mattress, mattress covers and bed covers) can be specified, it is advisable to undertake a test of the whole bed assembly that will be used in practice. Such conditions would be applicable in healthcare premises or homes providing residential care.
- 6.5 As in the case of upholstered furniture, all the test methods applied to beds and bedding use the smouldering cigarette and simulated match (small open flame). This is unlikely to provide an adequate standard for healthcare premises.
- 6.6 The “fire safety – risk assessment” guides produced by DCLG recommend that bed assemblies used in some occupancies/buildings should be resistant to

ignition by a smouldering cigarette (BS EN ISO 12952-1&2) and ignition source 5 (20 g newspaper equivalent) of BS 5852.

### Bed covers

- 6.7 EN 14533 provides a classification scheme for the burning behaviour of bedding items based on two ignition sources contained in BS EN ISO 12952. The classification is applied to single bedding items and not to complete bed assemblies. It provides for three classes of performance as shown in Table 4.
- 6.8 BS 7175 describes methods of test for the ignitability of bed covers and pillows, individually and in combination, when subjected to smouldering and flaming types of ignition sources of different severities. It is divided into five sections as follows:
1. general application;
  2. pillows and continental quilts tested with smouldering and flaming ignition sources;
  3. individual bedcovers (including mattress covers, sheets, pillowslips, blankets, bedspreads and continental quilt covers) tested with smouldering and flaming ignition sources;
  4. composites of known bed covers and pillows tested with smouldering and flaming ignition sources;
  5. final examination of test specimens and test reports.

**Table 4 Burning behaviour of bedding items**

Class	Class definition determined by EN ISO 12952
A	Passes the ignitability test with a smouldering cigarette
	Passes the ignitability test with a small open flame
B	Passes the ignitability test with a smouldering cigarette
C	Fails the ignitability test with a smouldering cigarette
	Fails the ignitability test with a small open flame

- 6.9 The tests given in BS 7175, in common with those given in both BS 7176 and BS 7177, are now based on the available European technical standards. BS 7175 has now, in part, been replaced by BS EN ISO 12952-1-4 (see [Appendix B](#)). The performances applied in BS 7176 and BS 7177 are only in respect of a smouldering source and a simulated match flame. There is no available European or international standard providing agreed larger ignition sources.
- 6.10 The scope of BS EN ISO 12952 describes specific test methods for bedding items which can normally be placed on a mattress (for further information, see [paragraphs 56–60 in Appendix B](#)).
- 6.11 Given the classification awarded in both BS 7176 and BS 7177, the same classification is extrapolated here. The test provides for the individual items to be subjected to the test procedures as well as a full composite representing the made-up bed and bedding (see Table 5).
- ### Pressure-relief products
- 6.12 Pressure-relief products may be found in a variety of forms (for example support aids, mattress overlays, underlays, air-filled mattresses, cushions etc). They are usually placed within a bed assembly or on a chair or wheelchair.
- 6.13 These products should meet the requirements of BS 7175 using ignition source 0 and 5. However, where there may be a conflict between fire safety and the health of the patient, discussion should take place between care staff and fire safety professionals. Decisions on the suitability of any pressure-relief products selected for use should be adequately documented in a fire risk assessment.
- 6.14 The above standards need not be applied to products used in baby cots.

**Table 5 Bed assemblies**

Medium hazard		High hazard	
British Standard	European Standard	British Standard	European Standard
BS 7176 and BS 7177 ignition source 0 and 5  Resistant to ignition source 5 in Part D of BS 5852	Resistant to ignition source: Smouldering cigarette of BS EN ISO 12952-1 & 2  Resistant to ignition source: Match flame equivalent of BS EN ISO 12952-3 & 4	BS 7176 and BS 7177 ignition source 7  Resistant to ignition source 7 in Part D of BS 5852	Resistant to ignition source: Smouldering cigarette of BS EN ISO 12952-1 & 2  Resistant to ignition source: Match flame equivalent of BS EN ISO 12952-3 & 4

## 7 Apparel

### General

- 7.1 This is a complex area. While it is generally accepted that in acute wards patients will normally be dressed in nightclothes (pyjamas, nightdresses and dressing-gowns), in other long-stay hospitals they would be expected to be in normal day clothes. In both instances, it will usually be the patient's own clothing that will be worn, and the necessary laundering etc is likely to be undertaken by the patient's family.
- 7.2 Little can be done in respect of the fire behaviour of all such clothing. However, in the case where the hospital or other healthcare service provides the garments, a degree of safety can be achieved.
- 7.3 Items of nightwear are covered by the Nightwear (Safety) Regulations 1985 and the Nightwear (Safety) (Amendment) Regulations 1987. The regulations require nightwear to be appropriately labelled (for example "Keep away from fire").
- 7.4 Such requirements do not recognise that, in many instances, such garments could be home-made, or that older children may be wearing non-compliant adult nightwear. Under such circumstances there is little that can be achieved. It is impractical for hospital staff to check all such garments on admission, as in the case of long-stay patients this could be an ongoing requirement.
- 7.5 The basic provision, therefore, in the case where garments are provided by the hospital or other service provider, is that garments must conform to the current regulations. Gifts or donations of garments that cannot be so identified should not be used.
- 7.6 Additionally, certain material constructions give rise to the phenomenon of rapid surface burning or surface-flash when tested in accordance with EN 1103. Such garments (usually dressing-gowns) include cotton or other fabrics with a raised (pile) surface. The use of such garments should be discouraged. If such a garment is provided by the patient themselves, they should be offered the use of another dressing-gown provided by the hospital.
- 7.7 The Nightwear (Safety) Regulations and the Nightwear (Safety) (Amendment) Regulations apply to garments supplied as nightwear, and to garments supplied otherwise than for nightwear but which are similar in nature and commonly worn as nightwear, for example:
- bathrobes;
  - negligées; and
  - snuggle wraps.
- 7.8 While it is unlikely that negligées would be either supplied or worn in a hospital, there is every possibility that bathrobes and even snuggle wraps could be worn or provided by the hospital. In the case of older people who are long-stay patients, snuggle wraps might be worn in day-rooms.
- 7.9 The flammability performance of the regulations relates to the whole area of the garment including threads, trimmings, decorations and labels. This should be borne in mind where repairs are carried out on the premises.
- 7.10 Nightwear made and trimmed with synthetic fibres which melt without decomposing when ignited as part of the BS test can be taken to meet the flammability performance requirements.
- 7.11 The regulations cite the test specifications of BS 5722, which in turn cites BS 5438. As the regulations are still in force, the only means of demonstrating compliance is to test using these two technical standards. There can be no other method of test while the regulations are extant.
- 7.12 For all other applications for apparel items, EN 1103 would be the appropriate method of test. The European Commission (Directorate-General for Health and Consumer Protection) recently gave a study mandate to CEN to complete an investigation on the need for technical specifications for fire behaviour at the European level. This was followed by a standardisation

mandate, and a draft technical specification prEN 14878 covering nightwear has been produced and is currently being formally considered by CEN members.

- 7.13 This European technical specification requires that EN 1103 be used to evaluate the fire behaviour of nightwear. The ignition test specified is BS EN ISO 6941. Once prEN 14878 is published, the UK may consider the future status of the current regulations. Until this happens and a decision is made, healthcare organisations must continue to use only the methods of test cited in the current regulations.

## 8 Disposables

### Sheets, pillowslips, drapes and bibs

- 8.1 Disposable or non-woven products are available for many end-use applications, and the quality now available makes them attractive to healthcare organisations as they can be used in an emergency when supplies of conventional items are interrupted. They must be used with caution because they can present a higher fire risk than reusable textiles, as it is difficult to have disposable products with FR properties. As far as reasonably practical, their use should be kept to a minimum, and they should not be used regularly as a matter of course to reduce maintenance costs.
- 8.2 Particular care and observance of fire precautions is recommended where these types of product are used or stored. Large numbers of these products should not be stored in the ward areas, and further guidance is given in Health Technical Memorandum 05-03: Part A – ‘General fire precautions’.

### Curtains

- 8.3 A number of suppliers now offer disposable cubicle curtains. These lightweight curtains are easy to take down and are maintenance-free. It is claimed that

they help to eliminate cross-contamination and are ideal for critical care units, burns units or anywhere where cubicle curtains must be changed frequently.

- 8.4 Made from non-woven polypropylene material, it is claimed that they are 100% flame-retardant. Many of these products originate from the USA, although UK suppliers may offer these to healthcare organisations. The claims as to their flame-retardance treatment and subsequent claimed performance should be treated with caution.
- 8.5 If their use is being contemplated in any healthcare application, the method of test used to determine the claimed performance should be established. It is also important to establish the means by which the stated performance has been achieved. The flame-retardant chemicals used in the USA may not meet the requirements imposed by European legislation. They should meet the same flame-retardant requirements as for reusable curtains (for example BS 5867); however, the durability (50 washes) is not necessary due to their disposable nature. As part of the fire-retardant test procedures though, they should be subjected to a water-soaking procedure.

## 9 Marking and labelling

### General

- 9.1 In most instances, the product (for example furniture and nightwear) in use will carry the label as required by the current national regulations. As most of the performance requirements given in this Health Technical Memorandum are above the minimum requirements, the products will not carry any label.
- 9.2 All textiles, furniture and furnishings covered by this Health Technical Memorandum should be clearly and durably labelled, or marked according to the individual contract requirements.
- 9.3 It would be appropriate for suppliers to fix such labels to their products confirming that they provide compliance to the specified technical specification.
- 9.4 The label should include advice on any special precautions that are necessary concerning care and cleansing, taking into account the durability procedure used/specified.
- 9.5 Where furniture or furnishings or any other product within the scope of this Health Technical Memorandum is reupholstered or repaired, only materials that comply with the original performance recommendations should be used. A new label that confirms this should be provided by the repairer.

## 10 Cleansing

### General

- 10.1** This chapter primarily relates to fabrics which have been chemically treated to impart flame retardance (FR). It does not give detailed laundry-process instructions. It is included as information for all those concerned with the selection, purchase and care of textiles and textile items, to illustrate the laundering process for those fabrics.
- 10.2** As there are many variations in the types of washing and finishing equipment in commercial and hospital laundries, individual linen service and laundry managers will formulate the appropriate washing processes which should be followed to retain the FR effectiveness of chemically-treated fabrics.
- 10.3** Where appropriate, records should be maintained to allow for effective monitoring and audit of the care and cleansing of chemically-treated items. This should include the loading factor expressed as the ratio of dry load (kg) to net cage volume.

### Flame-retardant cotton fabrics

#### Loading factor

- 10.4** The normal loading factor (1:12) for cotton articles is satisfactory, but white and coloured fabrics should not be washed in the same load.

#### Wash

- 10.5** Generally a two-wash process will be satisfactory. This means a break-wash or pre-wash to remove surface soiling and a second wash or main wash at a higher temperature to remove more resistant soiling and to achieve thermal disinfection.

#### Break-wash (first wash)

- 10.6** Net washing time five minutes at a recommended maximum temperature of 40°C at a high dip (liquor ratio 1:10 – liquor ratio is defined as the ratio of dry load (kg) to total volume of water (litres)).

### Second wash (main wash)

- 10.7** Net washing time ten minutes at the recommended loading factor of 1:12 at a low dip (liquor ratio 1:4) and at a maximum temperature of 75°C ± 2°C.

### Wash materials

- 10.8** To minimise the risk of masking the FR properties by insoluble lime soaps, a synthetic, preferably non-ionic, detergent is recommended. BS EN ISO 15797 gives the appropriate industrial detergent formulation.
- 10.9** Sodium hypochlorite (chlorine) bleach should not be used as it will destroy the imparted FR properties.
- 10.10** Starch or other additives should not be used as they will mask the FR properties.

### Rinse/extraction

- 10.11** When washing with a synthetic detergent, three rinses should be adequate.

### Fabrics from synthetic fibres

- 10.12** Fabrics of this type, such as modacrylic and polyester, are of low fire hazard level.
- 10.13** These types of fabrics are not affected by the laundering processes that are recommended for synthetic fibres, but care must be taken in the finishing of modacrylic fibres.
- 10.14** Generally they are unsuitable for calendaring, and excessively high temperatures must be avoided during tumble-drying.

### Dry-cleaning

- 10.15** Dry-cleaning solvents do not mask or degenerate FR properties. Cleaning of such items/garment should be carried out according to the care label.

# 11 The use of a chemical flame-retardant

## General

- 11.1 The fire behaviour of textile end-use applications, including furniture and furnishings, used in both domestic dwellings and public buildings, is of considerable importance. The fire hazard/risk of these materials, and the smoke and toxic gases produced by their combustion, cannot be entirely reduced or contained by operational means, such as improved methods of escape, fire detection or smoke extraction.
- 11.2 There is no truly flame-proof textile. The best that can be achieved is a resistance to ignition by specific sources such as smouldering cigarettes or small open flames (equivalent to a match) or larger flames (single burning item such as a waste-paper basket). In a number of limited applications, certain natural fibres (for example wool) can demonstrate an inherent natural ability in terms of certain fire behaviour, such as resistance to ignition. Other man-made fibres (for example flame-retardant polyester) can also provide modified fire behaviour, such as ignition resistance or a reduction in surface burning.
- 11.3 It would be normal practice in the light of such a requirement for some textile fabrics to be treated with a flame-retardant chemical to achieve the required performance. This can be done either by applying chemicals to the fibres before processing into a textile, or by applying to the textile fabric at an appropriate stage during manufacture.
- 11.4 In some cases, the nature of such chemicals is controversial and their use may be deprecated. Following a risk assessment, the European Parliament's Environment Committee introduced an EU marketing-and-use ban on the brominated flame-retardant "pentaBDE". This has now been widened to cover other related controversial substances in the same chemical group.
- 11.5 Textile end-use applications should not present any health hazard arising from the chemical properties of the fabric(s) from which they were made. Neither should there be any health hazard from any substances or preparations used to treat or coat any textile.
- 11.6 Specifically, the toxic and eco-toxic aspects of chemical flame-retardant treatments when applied to any textile end-use application may need to be considered. One specific principle that may be considered is that only those flame-retardant substances and preparations that the European Commission's Scientific Committee on Health and Environment Risks (SCHER) has evaluated can be used.
- 11.7 The standardisation mandate (M304) given to CEN to prepare technical standard methods of test for adult and children's nightwear recognises that certain flame-retardant treatments can be considered acceptable.

## Durability

- 11.8 In achieving both the recommended fire behaviour and flame-retardant performance discussed in this guidance, chemical treatments may therefore be applied to the textiles. Such treatments must perform the task for which they are applied for the normal life of the fabric; they therefore must be durable.
- 11.9 Any normal routine washing or cleansing procedures (see [Chapter 10](#)) applied to garments or to fabrics (such as beds and bedding, curtains, upholstered furniture etc) that have been treated in any way should be carried out in accordance with the manufacturer's instructions contained on the care label on the garment or product.



## Section B – Supporting information

## 12 The Keymark – the CEN/CENELEC mark of conformity

### General



- 12.1 The Keymark, also called CEN European Mark, is a voluntary third-party certification mark providing assurance that a product complies with specified requirements of the relevant European Standard(s) issued by CEN.
- 12.2 The Keymark is only licensed for use in combination with the marks of existing national certification systems (for example the BSI Kitemark and schemes demonstrating conformity of products with CEN standards and operated by empowered certification bodies).
- 12.3 It is a sign of “Europeanisation” of the national marks and in some cases it constitutes a step to harmonising the national certification schemes and marks. It improves confidence in the national marks of all countries concerned and acceptance of the equal quality of the national certification schemes.
- 12.4 Given that the UK Government is supportive of the scheme, healthcare organisations may wish to consider their position in this respect. If products were to be offered that carry the Keymark, it might be considered an advantage.
- 12.5 Once a product is tested and certified to obtain the Keymark in one country, there should be no need for retesting in other countries participating in the scheme. The manufacturers and retailers should therefore be able to effectively market their products Europe-wide. The Keymark also acts as a market-opener, a key to the single market.
- Consumers and users will be confident that it addresses all the social concerns which are defined in a European Standard, and that it will be recognised in Europe by those with an interest in requirements relating to safety, health and environmental protection.
- 12.6 The Keymark can be applied for by manufacturers (and importers), and retailers in collaboration with manufacturers. In this respect the mark aims to provide sufficient value so that retailers/manufacturers can effectively market their products. Governments, in the framework of EU directives such as the General Product Safety Directive (2001/95/EC) and in the framework of recommendations such as those relating to mutual recognition, are expected to rely on the Keymark as evidence that the products concerned are suitable for use, taking into account all the established requirements of the reference standard(s). It is possible that manufacturers in other parts of Europe will offer the Keymark in support of a tender to supply a healthcare organisation with their products.
- 12.7 The Keymark should not be confused with the CE Mark (see [Chapter 18](#)), which is a mandatory declaration from the manufacturer/supplier that the product fulfils and demonstrates respect for the essential requirements of the relevant EU directives.
- 12.8 Consumers support a single European mark, which has to fulfil specific requirements such as third-party testing and precise information to provide transparency on safety, performance and environmental aspects of the product.
- 12.9 The Keymark delivers products to the European market with the required confidence using the fewest possible resources.
- 12.10 In principle, the basic components of the scheme are:
- proof of conformity of the product(s) against the CEN European Standard(s), taking account

of, if applicable, the specific rules approved by the CEN Certification Board;

- initial conformity assessment, especially by type testing and evaluation of the factory product control of the manufacturer, taking into account the elements of the BS EN ISO 9000 series;
- decisions on certification and licensing, including maintenance, extension, suspension and withdrawal;
- periodic surveillance.

### How does it work?

- 12.11 The precondition for establishing a Keymark scheme is a set of relevant requirements in the CEN European Standard(s) to which conformity can be evaluated.
- 12.12 If national marks (or a national mark) exist, granted on the basis of national standards transposing the European standards involved, the CEN Certification Board can decide, after evaluation, on the acceptance of the existing national schemes as conforming to the Keymark requirements and allow the Keymark to be licensed for use in combination with those national marks.
- 12.13 To obtain the Keymark, the manufacturer must submit the application to a certification body empowered for the scheme relevant for his/her products. Attention is drawn to the fact that his/her choice implies also the choice of the national mark in combination with which the Keymark is granted. The descriptions and documentation pertaining to the product to be provided by the manufacturer may, at least in detail, vary from country to country.

## 13 Eco-labels and textile end-use applications

- 13.1 As in the case of the Keymark scheme (see [Chapter 12](#)), the UK Government is supportive of eco-labels, and a request to manufacturers/suppliers to conform to the provisions required to use eco-labels may be considered desirable.
- 13.2 The basic aim of the original Council Regulation (880/92/EEC of 23 March 1992 on a Community eco-label award scheme) was for a voluntary and selective Community eco-label award scheme, and this is carried over in the later, replacement European regulations. The award scheme should provide guidance to specifiers/ consumers on products with a potential for reducing environmental impact when viewed through its entire life-cycle. It should provide information on the environmental characteristics of labelled products.
- 13.3 Such provisions are supported by the UK Government generally, and healthcare organisations may wish to confirm this by recommending that products, where possible, should be able to demonstrate compliance with the principles concerned.

### Regulation (EC) No 1980/2000 of 17 July 2000 on a revised Community eco-label award scheme

- 13.4 The initial proposal for the Community eco-label was made in Council Regulation 880/92/EEC. It provided for a review after five years, and thus Regulation (EC) No 1980/2000 was consequently published in July 2000. The current regulations are the basis for the eco-label award scheme being extant today.
- 13.5 The use of the Commission eco-label is optional. There are no mandatory requirements for a manufacturer to provide the eco-label, but if they so choose, they must follow the provisions of the relevant Commission decision.
- 13.6 The provisions of this regulation refer to Council Directive 67/548/EEC, which preceded the

1999/45/EC Directive. It is under the 67/548/EEC Directive that certain flame-retardant chemical substances are classified as harmful to the environment.

- 13.7 The scheme could be applied to most of the products covered by this guidance. For the purposes of the regulations, the term “product” is taken to include any goods or services. The Community eco-label may be awarded to products available in the Community which comply with the essential environmental requirements of Article 3 of the regulations.
- 13.8 The specific application of the scheme is detailed in a series of formal Commission decisions, individual to the various “product” groups; there are two such decisions relevant to healthcare organisations. Each such decision has a maximum life of five years. The regulation under which these decisions are made does not have a specific life-span of application.

### Commission Decision 2002/371/EC of 15 May 2002 establishing the ecological criteria for the award of the Community eco-label to textile products

- 13.9 To be covered by this decision, a textile product must fall within the scope of Article 2, which stipulates that textile products shall comprise:
- textile clothing and accessories;
  - interior textiles for interior uses (wall and ceiling coverings are not included).
- 13.10 In the annex to the decision, fibre-specific criteria are set out for a number of major textile groups. The annex also covers the use of dyes, coatings and finishes including flame-retardants.
- 13.11 No use is allowed of flame-retardant substances or of flame-retardant preparations containing more than 0.1% by weight of substances that are assigned or may be assigned at the time of

application of any of the following risk phases (or combinations thereof):

R40 (limited evidence of a carcinogenic effect);

R45 (may cause cancer);

R46 (may cause heritable genetic damage);

R49 (may cause cancer by inhalation);

R50 (very toxic to aquatic organisms);

R51 (toxic to aquatic organisms);

R52 (harmful to aquatic organisms);

R53 (may cause long-term adverse effects in the aquatic environment);

R60 (may impair fertility);

R61 (may cause harm to the unborn child);

R62 (possible risk of impaired fertility);

R63 (possible risk of harm to the unborn child);

R68 (possible risk of irreversible effects).

This requirement does not apply to flame retardants that, on application, change their chemical nature to no longer warrant classification under any of the R-Phrases listed above, and where less than 0.1% of the flame retardant on the treated yarn or fabric remains in the form as before application.

As laid down in Council Directive 67/548/EEC and its subsequent amendments.

### **Commission Decision 2002/740/EC of 3 September 2002 establishing revised ecological criteria for the award of the Community eco-label to bed mattresses**

13.12 The product group here comprises:

- Bed mattresses  
(This definition includes products providing a surface to sleep or rest on, consisting of a strong cloth cover filled with materials that can be placed on an existing supporting bed structure. This includes framed sprung mattresses, which are defined as an upholstered bed-base consisting of springs, topped by fillings, on a rigid frame to be used as a bed frame or free-standing, combined with a mattress pad which is not intended to be used separately.)

13.13 This Commission decision refers to Decision 2002/371/EC (see [paragraphs 13.9–13.11](#)) relating to textiles. It, by a direct reference, refers to the use of flame retardants in the manufacture of mattresses.

## 14 General Product Safety Directive 2001/95/EC of 3 December 2001

### Introduction

- 14.1 It is this single directive that has the most significant impact on the recommendations contained in this Health Technical Memorandum. Based on the single premise that all products must be “safe”, manufacturers and specifiers are obliged to take this definition and the implication that what is safe can only be determined by the application of published European technical specifications (or the national provisions transposing them into national standards) and apply it to their products.
- 14.2 There are profound implications, and these are considered in some detail here. One important aspect to be considered initially is that the General Product Safety Directive does not cover “services”. While it could be argued that certain occupancies such as healthcare or care homes are a service industry, other important provisions of the directive could be applicable.
- 14.3 In order to secure the attainment of the protection objectives it contains for the consumer, certain provisions of the directive are applied to products that are supplied or made available to consumers in the context of service provision for use by them. On this basis, it is suggested that in the case of healthcare premises or a care home, for instance, the products such as furniture, beds, curtains and drapes etc are products made available in the context of a service provision. The provisions of the directive will therefore apply to all such products.
- 14.4 In publishing the 2001/95/EC Directive, the Commission has, effectively, achieved two things:
- (i) it has provided for the future protection of consumers within the European Union;
  - (ii) it has provided a framework which binds the Commission itself to a certain course of action in achieving (i) above.
- 14.5 The obligation is placed on the manufacturer to only supply “safe” goods. By definition, any

product that does not meet the requirements imposed is deemed to be “unsafe”. This can have serious implications for manufacturers where technical specifications exist at the European level and whose product does not meet any appropriate performance requirements when tested to the relevant specification standard.

### A “safe” product

- 14.6 A product may also be deemed safe when, in the absence of specific Community provisions, it conforms to the specific rules of national law of the member state.
- 14.7 Additionally, a product may also be deemed safe when it conforms to voluntary national standards transposing European standards, the references to which have been published by the Commission in the Official Journal of the European Union.
- 14.8 In circumstances where either of the above two provisions do not apply, the conformity of the product is to be assessed by taking into account the following elements, where they exist:
- voluntary national standards transposing relevant European standards;
  - the standards drawn up in the member state;
  - Commission recommendations setting guidelines on product safety assessment;
  - product safety codes of good practice;
  - state-of-the-art and technology;
  - reasonable consumer expectations concerning safety.
- 14.9 To evaluate the above provisions, therefore, the thrust of future effort to secure a satisfactory position regarding EN-published technical standards could therefore be along the following lines:
- with regard to standards that have been published in response to a formal standardisation mandate from the Commission,

the current state of the art would allow the publication of further technical standards (ENs) or at the very least a pre-norm (ENV);

- where there are reasonable consumer expectations for safety in this area.

## Application

- 14.10 Within any building providing a service occupancy, many products will be incorporated or provided either for the comfort and convenience of the occupants/guests or specifically to provide a degree of safety in the case of fire.
- 14.11 Within the provisions of the 2001/95/EC Directive, the contribution of harmonised European technical standards and national standards transposing the European standards is recognised. Under Whereas Clause 14, this procedure is acknowledged as an effective and consistent application of the general safety requirement of the directive.
- 14.12 By far the most significant risk in any building, particularly healthcare, is posed by the contents. Whether they be in the form of furnishings provided in public areas – lounge, dining room, reception areas – or in individual wards/bedrooms, these products are usually the items first ignited or mainly responsible for the fire.
- 14.13 Some member states have recognised the contribution to the risk of fire of such products by introducing national regulations covering upholstered furniture. In the UK, the original national regulations are applicable to domestic upholstered furniture and nightwear, but these basic provisions in respect of upholstered furniture have been extended by other guidance documents issued by the member state government to public buildings.
- 14.14 Looking at the basic provisions of the 2001/95/EC Directive, there are a number of fundamental considerations that have to be made in connection with fire safety.
- 14.15 Within Whereas Clause 6, it is stated:  
*“This Directive has been introduced as it has been considered necessary to establish at Community level a general safety requirement for any product placed on the market, or otherwise supplied or made available to consumers, intended for consumers, or likely to be used by consumers under reasonably foreseeable conditions even if it is not intended for them. In all these cases the products under consideration can pose*
- risks for the health and safety of consumers which must be prevented.”*
- 14.16 Within Whereas Clause 9, it is stated:  
*“This Directive does not cover services. However, to secure the attainment of the protection objectives in question, its provisions should also apply to products that are supplied or made available to consumers in the context of service provisions for use by them.”*
- 14.17 Within Whereas Clause 11 it is stated:  
*“In the absence of more specific conditions, within the framework of Community legislation covering safety of the products concerned, all the provisions of the Directive should apply to ensure consumer health and safety.”*
- 14.18 Within Whereas Clause 14 it is stated:  
*“In order to facilitate the effective and consistent application of the general safety requirement of this Directive, it is important to establish European voluntary standards covering certain products and risks in such a way that a product which conforms to a national standard transposing a European standard is to be presumed to be in compliance with the said requirement.”*
- 14.19 Within Whereas Clause 16 it is stated:  
*“In the absence of specific regulations and where European standards established under Mandates set by the Commission are not available or recourse is not made to such standards, the safety of products should be assessed taking into account in particular national standards transposing any other relevant European or international standards, Commission recommendations or national standards, international standards, codes of practice, the state of the art and the safety which consumers may reasonably expect.”*
- 14.20 In this context, the Commission’s recommendations may facilitate the consistent and effective application of this directive pending the introduction of European standards or as regards the risks and/or products for which such standards are deemed not to be possible or appropriate.

## Definition of a “product”

- 14.21 Article 1(2) applies the provisions of the directive to all products. The definition of “product” is given under Article 2(a) as:  
*“Any product – including in the context of providing a service – which is intended for consumers or likely, under reasonably foreseeable conditions, to be used by consumers even if not intended for them, and is*

*supplied or made available, whether for consideration or not, in the course of a commercial activity, and whether new, used or reconditioned.”*

## Definition of a “safe product” and a “dangerous product”

14.22 Article 2(b) defines a “safe product” as:

*“Any product which, under normal or reasonably foreseeable conditions of use including duration and, where applicable, putting into service, does not present any risk or only the minimum risks compatible with the product’s use, considered to be acceptable and consistent with a high level of protection for the safety and health of persons, taking into account the following points, in particular:*

- i the characteristics of the product ... ;*
- ii the effect on other products, where it is reasonably foreseeable that it will be used with other products ... ;*

...

*iv the categories of consumers at risk when using the product, in particular children and the elderly.”*

14.23 Article 2(c) is explicit in that it defines a “dangerous product” as any product that does not meet the definition of a “safe product”.

## Definition of a “serious risk”

14.24 Article 2(d) also defines serious risk as “any serious risk, including those the effects of which are not immediate, requiring rapid intervention by the public authorities”.

14.25 Article 3(1) obliges producers to place only safe products on the market (see paragraphs [14.6–14.9](#)).

# 15 Medical Devices Directive 93/42/EEC of 14 June 1993

## Introduction

- 15.1 The connection between the generally accepted understanding of a “medical device” and fire safety may seem tenuous, but when one considers the definition given in the scope of this directive, a clear connection may be established. Article 1(2)(a) of the directive defines a medical device as “any instrument, apparatus, appliance, material or other article, whether used alone or in combination”. Article 1 also gives the scope as applying to medical devices and accessories, and on this basis confirms that accessories are to be treated as medical devices in their own right.
- 15.2 Article 1(2)(b) further defines an accessory as “an article which whilst not being a device is intended specifically by its manufacturer to be used together with a device to enable it to be used in accordance with the use of the device intended by the manufacturer of the device”.
- 15.3 Article 2 identifies the need to consider the safety aspects. It provides for devices to be placed on the market and put into service only if they do not compromise the safety and health of patients, users and, where applicable, other persons when properly installed, maintained and used in accordance with their intended purpose. When this is taken with a specific comment in the “whereas clauses” that the provisions of Directive 89/391/EEC (on the introduction of measures to encourage improvements in the safety and health of workers at work) should continue to apply, the full application cannot be questioned.

## Application of the directive

- 15.4 Within Annex 1 of the directive covering essential requirements, it states that devices must be designed and manufactured in such a way that, when used under the conditions and for the purposes intended, they will not compromise the clinical condition, **or the safety and health of users**. This particular requirement is therefore related to the provisions of the 89/391/EEC

Directive dealing with the health and safety of those employed to work in the building.

- 15.5 Under the requirements regarding design and construction, Clause 7.1 states that particular attention must be paid to the choice of materials used, particularly as regards toxicity and, where appropriate, **flammability**.
- 15.6 While it would be difficult to argue or maintain that items such as curtains, drapes or most other textile end-use applications had a “medical application”, there is a case for such a claim for certain other items, including beds and upholstered furniture claimed to have a medical application such as being specifically designed/manufactured for orthopaedic use.

## Mattresses and bed-bases

- 15.7 There is a degree of misunderstanding about the status of mattresses placed on the market as medical devices with a CE mark of conformity and the fact that these mattresses do not have to meet the current requirements imposed by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).
- 15.8 It is the manufacturers’ decision whether their products fall within the scope of the Medical Devices Directive (93/42/EEC) and therefore the Medical Devices Regulations 2002. Manufacturers would have to be able to justify such a claim by providing evidence to support the medical claims made and to meet the relevant essential requirements, which include flammability.
- 15.9 There is no requirement from the Department of Health for any such products to be classified as a medical device.
- 15.10 For further clarification, contact the Medicines and Healthcare products Regulatory Agency (MHRA) ([www.mhra.gov.uk](http://www.mhra.gov.uk)).

## 16 ENV 14237: textiles in the healthcare system

### Introduction

- 16.1 CEN technical committee TC 248 has prepared a technical specification covering the use of textiles in healthcare. At the time of drafting this Health Technical Memorandum (2007), the technical committee has so far only published its proposed standard as a European prestandard (ENV). This has now been transposed by British Standards as a Draft for Development (DD).
- 16.2 ENV 14237 should not be regarded as a European standard; it is issued as a prestandard (ENV) because it is of a provisional nature. It is intended that the content should be applied on a provisional basis so that information and experience of its practical application may be obtained.
- 16.3 The experience so gained at the national level will be passed to CEN for consideration when the document is formally proposed for conversion to a full European standard.
- 16.4 Clause 2 “Normative references” cites the following EN standards as being appropriate:
- EN 1103;
  - EN 13773;
  - EN 20139;
  - BS EN ISO 6330;
  - BS EN ISO 12952-1–4.

#### Note

BS EN 20139 has been superseded by BS EN ISO 139.

- 16.5 All these technical specifications are addressed elsewhere in this Health Technical Memorandum.
- 16.6 These technical specifications are applied in Tables 1–8 of ENV 14237. The end-uses covered by these tables are as follows:
- Table 1 – bed textiles;
  - Table 2 – pillows and quilts;

- Table 3 – mattress protectors;
- Table 4 – blankets;
- Table 5 – towels;\*
- Table 6 – curtains;
- Table 7 – patients’ clothing/baby clothing;\*\*
- Table 8 – staff clothing.\*

**Note\*** – No flammability performance requirement.

**Note\*\*** – Flammability performance requirement not yet determined.

- 16.7 In each case where a flammability performance is given, the requirement is simply that the item “shall not ignite”. There is the further requirement applied in that where flame-retardant properties are not inherent, the producer shall certify the durability of the treatment and the test method used.

#### Comment

The European prestandard provides a specification for “unused” textiles in the healthcare system. However, there is confusion over what is meant by “unused” textiles. It is clear from the scope that the proposals do not apply to surgical textiles under the Medical Devices Directive (93/42/EEC), but the use of the term “unused” is confusing. Clarification from the chairman/secretary of the CEN/TC 248 committee suggests it is meant to be interpreted as “new” textiles.

Within the document there is no definition of “healthcare”. Given the primary objective of anything used in healthcare being for patient comfort, there may well be adverse comment from the various healthcare providers, particularly where performances are given in respect of patients’/baby clothing.

There is every possibility that the future status of this document will be determined during the currency of this Health Technical Memorandum. Given the basic requirement of “does not ignite”, it can be assumed that the provisions made in this Health Technical

Memorandum will adequately cover any future recommendations in this area.

All technical specifications cited as being applicable to the various textile end-use applications are contained in this Health Technical Memorandum.

## 17 The use of temporary structures (large tents and marquees)

### General

- 17.1 There will be many instances, particularly during the summer months, when functions such as open days or other such events could be organised in the grounds of a hospital. As a precaution against bad weather, a large temporary structure such as a tent, marquee, pneumatic structure, air-supported structure or similar structure may be erected.
- 17.2 Such structures may be completely free-standing or attached to the hospital building to provide additional accommodation. It is commonplace for some of these structures to have a seating capacity of several hundred.
- 17.3 These structures – by the very nature of their construction and the materials used – will present difficulties not normally found in conventional buildings. Their contents, brought in by the contractor, may also provide additional difficulties because of their possible temporary nature.
- 17.4 These difficulties will range from managing the provision and maintenance of the structural and other safety features to difficulties for the public, who may often find their routes of egress to be over uneven ground, temporary flooring, duckboards, ramps, stairways etc rather than the permanent surfaces found in conventional buildings.
- 17.5 The risk assessment therefore needs to give consideration to the varying activities to be accommodated. Consideration also needs to be given to the proposed length of time for which the structure will be erected. The impact this may have on the normal fire-safety arrangements, such as the means of egress provided from the building of the hospital, will therefore need to be considered. Any designated means of escape that originally led to the open air may now only give access to the inside of the temporary structure, which may or may not be classified as a place of safety.
- 17.6 In addition to the normal ignitability and flame-spread characteristics/hazards associated with the use of large areas of textile materials, it is possible that other hazards, such as high levels of toxic hazard, could be presented if certain modern materials (for example fluorocarbon polymers) are used.
- 17.7 Consideration in the risk assessment must also be given to the nature of any internal decoration or drapes provided; this includes the provision of artificial grass on the ground inside the structure.
- 17.8 The fabric of the structure should be assessed in accordance with EN 14115. The assessment of the burning behaviour of the interior decorations used should be in accordance with [Chapter 5](#) of this Health Technical Memorandum.

## 18 European CE (Conformité Européenne) Mark



### General

- 18.1 The CE Mark is a visible declaration by the manufacturer (or his representative, importer etc) that the equipment/product which is marked complies with all the requirements of all the applicable directives (including the entire administrative requirement involved in being able to demonstrate compliance).
- 18.2 The letters “CE” indicate that the manufacturer has undertaken all the assessment procedures required for the product.
- 18.3 The CE mark is not a quality mark and does not indicate conformity to a standard; rather it indicates conformity to the legal requirements of the EU directives.
- 18.4 The CE Mark is now mandatory for all regulated products sold in the European Union.

# Appendix A – European legislation

## Introduction

1. This Appendix contains a summary of the principal provisions or essential requirements of the individual directives, Council decisions and Council recommendations identified as having a direct impact on textiles or specific textile end-use application. Under the provisions of the Treaty of Rome, the member states are required to provide the necessary national legislation to transpose the essential requirements and other provisions of directives into national law.

## Directive 2001/95/EC – The General Product Safety Directive

2. It is this single directive that has the most significance as far as textiles are concerned (see [Chapter 14](#)).

## Council Directive 89/106/EEC – The Construction Products Directive

3. This directive applies to construction products/materials and cannot be construed as being applicable to textiles generally. Textiles, by themselves, are not used in the “construction” of a building. They may, however, be incorporated in other construction materials such as wall or ceiling linings. The exception to this is soft floor coverings, and these are included in respect of their reaction-to-fire performance only.
4. The directive provides for the setting of classes of performance known as “Euroclasses”. The member states are free to set their own level of performance, but only from within the seven classes given. The directive allows for the award of the CE mark to products, which ensures they may be used anywhere in the EU without the need for any further testing.

## Commission Decision 2000/147/EC – Reaction to fire performance of construction products

5. Within this decision, Article 1 states that when the end-use application of a construction product is such that it may contribute to the generation and spread of fire and smoke within the room (or area of origin or beyond), the product shall be classified on the basis of its reaction to fire performance, having regard to the classification system set out in Tables 1 and 2 of the annex to the decision. Table 2 is applicable to flooring generally.
6. There are seven classes determined in the tables, and this includes a “no performance determined” category. The testing to be applied is listed in [paragraphs 40, 41, 52 and 54](#) of Appendix B in this Health Technical Memorandum; the actual performance required of the product can only be determined by the regulatory authorities in the member states. The smoke-producing potential of the flooring may be measured if required.
7. There has been a minor amendment to this decision by way of Commission Decision 2003/632/EC.

## Directive 89/391/EEC – The Safety and Health of Workers (Framework) Directive

8. The duties of the employer are given under Article 6. The employer is required to take all the measures necessary for the safety and health protection of workers. Under Article 8(1) the employer is required to take all the necessary measures for fire-fighting and evacuation of the workers. He/she is required to take into account “**other persons present**”.
9. Article 9(1)(a) obliges the employer to be in possession of an “assessment of the risks” to safety and health at work for examination by the enforcing authority.

## Directive 89/654/EEC – The Minimum Safety and Health Requirements Directive

10. This directive defines a “workplace” as anywhere where any person works, and includes any other place within the workplace to which the worker has access. The directive contains two annexes, dealing with workplaces used for the first time and workplaces already in use. These annexes contain many of the provisions that are to be taken into account in the preparation of the assessment of the risks. In completing the assessment, due consideration must be given to all the risks and/or hazards identified, and this will include a careful consideration of the fire behaviour of the contents, as this will be directly related to all the other fire safety provisions the workplace contains. Due cognisance will have to be given to the provisions of the General Product Safety Directive (2001/95/EC) and the requirement to provide only “safe” products for use by the workers (consumers).

## Directives 1999/45/EC and 67/548/EEC – The Classification, Packaging and Labelling of Dangerous Preparations

11. These directives do not have a direct application for textiles, but they do provide the legislative means for the Commission to introduce regulations and decisions that themselves have a direct impact on textile end-use applications (see paragraphs 13–18 below).

## Regulation (EC) 1980/2000 – Eco-label award scheme

12. This regulation introduces a voluntary Community eco-label scheme intended to promote products with a reduced environmental impact during their entire life-cycle (see paragraphs 13.4–13.8).

## Commission Decision 2002/371/EC – Textile products

13. This decision establishes a “product group” comprising clothing and accessories and interior textiles (see paragraphs 13.9–13.11).

## Commission Decision 2002/740/EC – Bed mattresses

14. This decision establishes a “product group” comprising of bed mattresses regardless of filling (latex or polyurethane) as well as interior sprung mattresses (see paragraphs 13.12–13.13).

## Directive 93/42/EEC – The Medical Devices Directive

15. See Chapter 15.

## Directive 88/378/EEC – The Safety of Toys Directive

16. The relevant fire safety provisions of the directive are contained in Annex II Part II Clause 2. Within the provisions of this clause it is required that toys do not constitute a dangerous flammable element of a child’s environment. All the materials used must therefore:
- not burn if directly exposed to a flame or spark or other potential seat of fire;
  - not be readily flammable (the flame must go out as soon as the fire cause disappears);
  - burn slowly if they do ignite, and present a low rate of spread of flame;
  - irrespective of the toy’s chemical composition, be treated so as to delay the combustion process;
17. EN 71-2 covers the methods of test for the flammability safety of toys. It has been prepared under a standardisation mandate and therefore supports the essential requirements of the directive. Logically, it is the only method of demonstrating any presumption of conformity (see paragraphs 3–12 in Appendix B).
18. The scope of the directive includes:
- toys to be worn on the head;
  - toy disguise costumes and other toys intended to be worn by the child;
  - toys intended to be entered by the child; and
  - soft filled toys larger than 150 mm.

### **Council Resolution 2003/C11/01 – Community policy strategy 2002–2006**

19. This Council resolution outlines, in general principles, the Commission's consumer policy strategy for the four years starting in 2002. There is no mention of any specific target, but the principles will be applied to all future consumer safety activity. Basically, the resolution confirms that the Commission attach a high level of importance to consumer safety as provided for in the General Product Safety Directive (2001/95/EC). Its provisions, therefore, are relevant to the contents of this revision.
20. The resolution confirms its general support for the communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions.

### **Council Resolution 2003/C299/01 – Safety of services for consumers**

21. The Council is moving towards to the publication of a directive to complement the General Product Safety Directive (2001/95/EC). Dealing with the safety of services, it is intended to provide the basic framework of all safety aspects in the provision of services generally. Until the document has been agreed, the Commission Services is asking member states to consider and express their views.

# Appendix B – European and international technical specifications

## Introduction

1. This appendix contains comments on the principal technical specifications published by CEN.
2. The technical specifications are listed in numerical order and not in order of any other importance.

## EN 71-2 – Safety of Toys. Flammability

3. EN 71 has been prepared by CEN technical committee CEN/TC 62 under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports the essential requirements of the EU directive.
4. Part 2 deals specifically with the flammability aspects of toy safety. However, part 2 must be considered along with part 1, which deals with the general mechanical and physical properties of all toys.
5. Part 2 is based on the general principle that toys (as defined) must not constitute a dangerous flammable element in a child's environment. The technical specification therefore specifies the categories of material which are prohibited in all toys, and gives requirements concerning the flammability of certain toys when they are subjected to a small source of ignition.
6. The technical specification includes a reference to EN ISO 6941 as the cited means of evaluating the flame spread properties of vertically-oriented specimens, and to EN 1103 as the means of identifying the surface-flash properties of materials. The scope of the technical specification includes:
  - toys to be worn on the head, which includes beards, moustaches, wigs etc, masks, and flowing material attached to hats, masks etc;
  - toy disguise costumes and toys intended to be worn by a child;
  - toys intended to be entered by a child;
  - soft filled toys with a pile or textile surface and larger than 150 mm in height.
7. The testing protocol provides for the toys to be subjected to a small gas burner as described in ISO 6941, and either butane or propane may be used. The basic testing configuration is amended to the various categories of toy as follows.
8. Clause 4.1 on general requirements provides for a definition of highly flammable solids and flammable gases when used in the context of toys.
9. Clause 4.2 covers those toys intended to be worn on the head, such as masks, wigs and hats etc.
10. Clause 4.3 covers those toys worn by a child, such as disguise costumes.
11. Clause 4.4 covers those toys intended to be entered by a child, such as play tents, play tunnels etc.
12. Disguise costumes and toys which a child can enter are usually large. Therefore, a specially constructed U-shaped double frame has been designed to ensure that the material is secured throughout the test. This is covered by Clause 5.1. In such circumstances, it is not the ease of ignition that presents the basic problem, it is the rate of spread of flame.

## EN 597-1 – Furniture. Assessment of the ignitability of mattresses and upholstered bed-bases. Ignition source: smouldering cigarette

13. This standard is one of a series of standards concerned with the ignitability of mattresses and upholstered bed-bases using different ignition sources. The ignition source used in this standard is a smouldering cigarette. It cannot be assumed that protection against smouldering ignition sources will automatically provide protection against a flaming ignition source. Users of this standard should therefore recognise the need to submit test specimens to both smouldering (cigarette) and flaming (match flame equivalent) sources.
14. This standard lays down a test method to assess the ignitability of mattresses, upholstered bed-bases or

mattress pads when subjected to a smouldering ignition source (cigarette). Air mattresses and water beds are excluded from this standard. The full upper surface or upper-surface characteristic features of the mattress, bed-base or mattress pad is subjected to the contact of smouldering cigarettes by disposing the cigarettes so that all the zones having different characteristics are tested.

### **EN 597-2 – Furniture. Assessment of the ignitability of mattresses and upholstered bed-bases. Ignition source: match flame equivalent**

15. This part of EN 597 is the same as part 1 except for the substitution of a small gas flame (match-flame equivalent) for the smouldering (cigarette) ignition source.

### **EN 1021-1 – Furniture. Assessment of the ignitability of upholstered furniture. Ignition source: smouldering cigarette**

16. This part of the standard is one of a series of standards concerned with the ignitability of upholstered furniture using different ignition sources. The ignition source used in this part is a smouldering cigarette.
17. Part 1 lays down a test method to assess the ignitability of materials combinations, such as covers and fillings used in upholstered seating, when subjected to a smouldering cigarette as an ignition source. The test measures only the ignitability of a combination of materials used in upholstered seating and not the ignitability of a particular item of finished furniture incorporating these materials. They give an indication of, but cannot guarantee, the ignition behaviour of the finished item of furniture.
18. The test sample is prepared using the materials combined together in a way intended to be generally representative of their end-use in upholstered seating; thus, the potential ignitability of a particular cover, filling and interliner, if provided, can be assessed.

### **EN 1021-2 – Furniture. Assessment of the ignitability of upholstered furniture. Ignition source: match-flame equivalent**

19. The provisions of this part of EN 1021 are the same as part 1 except that the ignition source is a small flaming source equivalent to a match.

### **EN 1101 – Textiles and textile products. Burning behaviour. Curtains and drapes. Detailed procedure to determine the ignitability of vertically-oriented specimens (small flame)**

20. This European standard specifies a procedure to determine the ignitability of textiles used for curtains and drapes by testing in accordance with BS EN ISO 6940. The preparation of the sample and the test procedure are as provided in BS EN ISO 6940. In addition, the provisions of EN ISO 6330 and BS EN ISO 3175-1&2 are applied.

### **EN 1102 – Textiles and textile products. Burning behaviour. Curtains and drapes. Detailed procedure to determine the flame spread of vertically-oriented specimens**

21. This European standard specifies a procedure to determine the flame spread of textiles used for curtains and drapes by testing vertically-oriented specimens in accordance with EN ISO 6941. The sampling and test procedure are as provided in EN ISO 6941. Again, the provisions of EN ISO 6330 and EN ISO 3175 are applied.

### **EN 1103 – Textiles. Fabrics for apparel. Detailed procedure to determine the burning behaviour**

22. This European standard specifies a procedure to determine the burning behaviour of textiles when tested using the surface ignition test in EN ISO 6941. Again, the provisions of EN ISO 6330 are applied. In the case of the testing protocol, only the outer surface of the fabric is tested; if the outer surface cannot be determined, only the surface shown by pre-testing to spread flame at a higher rate is tested. Where the material comprises more than a single layer, the combination of materials as worn is subjected to the test procedures. If there is

any occurrence of surface flash (defined in EN 1103), this is reported in the test report.

### **EN 1624 – Textiles and textile products. Burning behaviour of industrial and technical textiles. Procedure to determine the flame spread of vertically-oriented specimens**

23. This European standard specifies a procedure to determine the flame spread of vertically-oriented specimens of industrial and technical textiles, when tested in accordance with EN ISO 6941.
24. The definition of industrial and technical textiles means any textile which can be used for industrial or technical purposes. It does not include textiles for general purposes such as curtains and drapes, protective clothing, upholstery or bedding.

### **EN 1625 – Textiles and textile products. Burning behaviour of industrial and technical textiles. Procedure to determine the ignitability of vertically-oriented specimens**

25. This European standard specifies a procedure to determine the ignitability of vertically-oriented specimens of industrial and technical textiles, when tested in accordance with EN ISO 6941.
26. The definition of industrial and technical textiles means any textile which can be used for industrial or technical purposes. It does not include textiles for general purposes such as curtains and drapes, protective clothing, upholstery or bedding.

### **EN 12229 – Surfaces for sports areas. Procedure for the preparation of synthetic turf and needle-punch pieces**

27. This European standard specifies a procedure for the preparation of test pieces for synthetic turf and needle-punch sports surfaces. The test is applied to the surfacing and supporting layers. It is applied to carpet pile surfaces such as indoor bowling rinks and similar applications.

### **EN 12751 – Textiles. Sampling of fibres, yarns and fabrics for testing**

28. This European standard specifies several test methods for preparing laboratory samples of fibres,

yarns or fabrics, and presents a limited treatment of the problems of drawing specimens for testing.

29. It is not possible for the coverage of each individual procedure to be fully comprehensive; in many instances, the selection of test samples or test specimens is necessarily covered by the appropriate method of test.

### **EN 13772 – Textiles and textile products. Burning behaviour. Curtains and drapes. Measurement of flame spread of vertically-oriented specimens with a large ignition source**

30. This European standard specifies a method of test for the measurement of flame spread of vertically-oriented textile fabrics intended for curtains and drapes using a large ignition source. A heat flux of a defined energy is applied to a specified area of the lower part of the back side of the vertical specimen. After a period of exposure (30 sec), the small flame defined in BS EN ISO 6941 is applied for 10 sec to a small piece of cotton fabric fixed around the bottom edge of the specimen. The possible flame spread is measured through the severance of marker threads.
31. While much of the test procedure etc is based on BS EN ISO 6941, the size of the test sample has necessitated a number of adjustments to the test apparatus.

### **EN 13773 – Textiles and textile products. Burning behaviour. Curtains and drapes. Classification scheme**

32. This European standard specifies a classification scheme for the burning behaviour of vertically-oriented fabrics intended for curtains and drapes and similar uses such as blinds and textile hangings, where classification is required. Untested materials are not classified. The classification scheme is based on the measurement of ignitability and flame spread according to the relevant European test methods – EN 1101, EN 1102 and EN 13772. The flame spread of the materials that are ignited by the small flame source (EN 1101 and EN 1102) is measured with this same ignition source. The flame spread of materials that will not ignite with the small flame source is measured with a more severe ignition source. Ignitability and flame spread leads to a classification scheme with five classes (see [Table 3](#)).

33. In the case of ignitability or ease of ignition, the classification scheme refers to the edge ignition test of EN 1101, modified by starting with 1 sec flame application time and increasing the ignition time by 1 sec steps up to 5 sec and then by 5 sec up to 20 sec if no ignition occurs. The flame spread classification refers to the ignition tests of EN 1102 and EN 13772.

### **EN 14115 – Textiles. Burning behaviour of materials for marquees, large tents and related products. Ease of ignition**

34. This standard specifies a test method for the burning behaviour of industrial and technical textiles used for tarpaulins, large tents, marquees and related structures. It is not intended to apply to materials used for small camping tents, nor any other internal features, nor to awnings.
35. Test specimens are subjected under specified conditions to the dual effect of:
- heat radiation;
  - hot gases flowing over the surface of test specimens to encourage any spread or propagation of the flames.
36. In this test protocol, a flame is used to ignite any gases emitted. The effects of ignition are noted and the extent of damage is measured.

### **EN 14533 – Textiles and textile products. Burning behaviour of bedding items. Classification scheme**

37. This European standard is one of five related standards (the other four being EN ISO 12952-1–4; see paragraphs 56–60 of this Appendix) for testing and classifying bedding items with regard to their burning behaviour. The standard specifies a classification scheme for the burning behaviour of bedding items based on two ignition sources (smouldering cigarette and small open flame). The classification is applied to single bedding items and not to complete bed assemblies. The classification refers to all the EN ISO 12952 test methods for ignitability by a smouldering cigarette and by a small open flame.

### **EN ISO 139 – Textiles. Standard atmospheres for conditioning and testing**

38. This international standard defines the characteristics and use of standard atmospheres for conditioning and for determining the physical and mechanical properties of textiles.
39. Before a textile is tested to determine a mechanical or physical property, it shall be conditioned by placing it in a standard temperate atmosphere for testing, in such a way that the air flows freely through the textiles, and keeping it there for the time required to bring it into equilibrium with the atmosphere.
40. The tests outlined in paragraphs 41, 42, 53 and 55 are not specifically applicable to textile end-use applications; they are concerned with construction products and have been prepared under a mandate from the European Commission. They are referred to in the Commission Decision 2000/147/EC (as amended by Commission Decision 2003/632/EC) and applied in Table 2 to floor coverings.

### **EN ISO 1182 – Reaction to fire tests for building products. Non-combustibility tests**

41. This international standard specifies a method of test for determining the non-combustibility performance, under specified conditions, of homogeneous building products and substantial components of non-homogeneous products.

### **EN ISO 1716 – Reaction to fire tests for building products. Determination of the heat of combustion**

42. This international standard specifies a test method for the determination of the heat of combustion of building products at constant volume in a bomb calorimeter.

### **EN ISO 3175-4 – Textiles. Dry cleaning and finishing. Procedure for testing performance when cleaning and finishing using simulated wet cleaning**

43. Part 4 of ISO 3175 specifies the simulation of professional wet cleaning procedures using a reference machine given in Annex A for fabrics and garments. It comprises a normal process for normal

materials, a mild process for sensitive materials, and a very mild process for very sensitive materials.

44. The specimen or specimens are cleaned in a reference washing-machine and finished to one of the specified procedures. The process simulates the effect of commercial professional wet cleaning, drying and finishing.

### **BS EN ISO 3758 – Textiles. Care labelling code using symbols**

45. This international standard:
- establishes a system of graphic symbols intended for use in the permanent marking of textile articles, providing information essential for their proper care;
  - specifies the use of these symbols in care labelling.
46. The following treatments are covered: washing; chlorine-bleaching; ironing; dry-cleaning; and tumble-drying after washing. The standard applies to all textile articles in the form in which they are supplied to the consumer.

### **EN ISO 6330 – Textiles. Domestic washing and drying procedures for textile testing**

47. This international standard specifies washing and drying procedures for textile testing. The procedures are applicable to textile fabrics, garments and other textile articles which are subjected to appropriate combinations of domestic and washing procedures.
48. A specimen is washed in an automatic washing-machine and dried according to a specified procedure which includes:
- “A” Line dry;
  - “B” Drip dry;
  - “C” Flat dry;
  - “D” Flat press;
  - “E” Tumble-dry.

### **EN ISO 6940 – Textile fabrics. Burning behaviour. Determination of ease of ignition of vertically-oriented specimens**

49. This international standard specifies a method for the measurement of ease of ignition of vertically-oriented textile fabrics intended for apparel, curtains and draperies in the form of single- or multi-component (coated, quilted, multi-layered, sandwich construction or similar combination) fabrics.
50. A defined ignition source from a specified burner is applied to textile specimens which are vertically oriented. The time necessary to achieve ignition is determined as the means of the measured times for ignition of the fabric. The minimum ignition time is defined as the minimum time of exposure of the material to an ignition source to obtain sustained combustion under specified test conditions.

### **EN ISO 6941 – Textile fabrics. Burning behaviour. Measurement of flame spread properties of vertically-oriented specimens**

51. This international standard specifies a method for the measurement of flame spread properties of vertically-oriented textile fabrics intended for apparel, curtains, draperies and large tents including awnings and marquees, in the form of single- or multi-component (coated, quilted, multi-layered, sandwich construction and similar combinations) fabrics.
52. A defined ignition flame from a specified burner is applied for a defined period of time to textile specimens which are vertically oriented. The flame spread time is the time in seconds for a flame to travel between marker threads located at defined distances. Other properties relating to flame spread may also be observed, measured and recorded. These parameters include the presence of after-flame or afterglow.

### **EN ISO 9239-1 – Reaction to fire tests. Horizontal spread of flame on floor-covering systems. Determination of the burning behaviour using a radiant heat source**

53. This international standard specifies a method for assessing the wind-opposed burning behaviour and spread of flame of horizontally-mounted floorings exposed to a heat-flux radiant gradient in a test chamber, when ignited by pilot flames. The method is applicable to all types of flooring.

### **EN ISO 10528 – Textiles. Commercial laundering procedure for textile fabrics prior to flammability testing**

54. This international standard specifies methods for assessing the possible effect of repeated commercial laundering on the flammability of textile fabrics. The effect of laundering is simulated using an automatic drum washing-machine or small-scale laundry drum (wash wheel).

### **EN ISO 11925-2 – Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame. Single-flame source test**

55. This international standard specifies a method of test for determining the ignitability of building products by direct small flame impingement under zero-impressed irradiance using specimens tested in a vertical orientation. Products that melt and shrink away from the flame without being ignited may be addressed by an additional procedure given in the standard.

### **EN ISO 12952-1 –Textiles. Burning behaviour of bedding items. General test methods for the ignitability by a smouldering cigarette**

56. This international standard specifies a general test method common to all bedding items for assessment of their ignitability when subjected to a smouldering cigarette. It should be read in conjunction with EN ISO 12952-2, which describes a specific test method for bedding items that can normally be placed on a mattress. These will include:

- mattress covers;

- underlays;
- incontinence sheets and pads;
- sheets;
- blankets;
- electric blankets (not the electrical component);
- quilts or duvets and covers;
- pillows (whatever their filling);
- bolsters;
- pillowcases.

57. For the purposes of this test, the test specimen is placed on a testing substrate and is subjected to a smouldering cigarette placed on top of and/or below the test specimen as detailed in EN ISO 12952-2. Any progressive smouldering and/or flaming is reported. Where the actual mattress to be used is known, it can replace the testing substrate.

### **EN ISO 12952-2 – Textiles. Burning behaviour of bedding items. Specific test methods for the ignitability by a smouldering cigarette**

58. This European standard specifies product-specific details concerning specimen size, wash procedures, set-up of specimens and positions of cigarettes for testing bedding items according to the methods described in EN ISO 12952-1. It must be used in conjunction with part 1 at all times.

### **EN ISO 12952-3 – Textiles. Burning behaviour of bedding items. General test methods for the ignitability by a small open flame**

59. This European standard is the same as part 1 except that the ignition source of a smouldering cigarette is replaced by a small open flame (match-flame equivalent).

### **EN ISO 12952-4 –Textiles. Burning behaviour of bedding items. Specific test methods for the ignitability by a small open flame**

60. This European standard is the same as part 2 except that the ignition source of a smouldering cigarette is replaced by a small open flame (match-flame equivalent). This part must be used with part 3 at all times.

# Appendix C – British Standards with their date of original publication

1. Most of the British Standards in this Appendix are presently being considered by the appropriate BS technical committee for probable withdrawal in compliance with the obligations placed on the members of CEN. The publication of the technical specifications given in Appendix B imposed this obligation, and this is an active current work item for BSI.
2. The date in brackets ( ) is the confirmed date, indicating continued currency of the standard without full revision.
  - BS 2483 1977 (1983) Specification for overbed tables.
  - BS 4790 1987 (1996) Method for determination of the effects of a small source of ignition on textile floor coverings (hot metal nut method).
  - BS 5223-2 1999 Specification for hospital bedding. Combustion modified, flexible polyurethane, general purpose foam mattress cores.
  - BS 5223-3 1976 (1998) Specification for hospital bedding. Flexible polyurethane pillows.
  - BS 5223-4 1976 (1995) Specification for hospital bedding. Mattress covers of polyurethane coated nylon.
  - BS 5287 1988 (1996) Specification for the assessment and labelling of textile floor covering tested to BS 4790.
  - BS 5438 1989 (2002) Methods of test for flammability of textile fabrics when subjected to a small igniting flame applied to the face or bottom edge of vertically oriented specimens.
  - BS 5651 1989 (2002) Method for cleansing and wetting procedures for use in the assessment of the effect of cleansing and wetting on the flammability of textile fabrics and fabric assemblies.
  - BS 5722 1991 (2002) Specification for flammability performance of fabrics and fabric combinations used in nightwear garments.
  - BS 5742 1989 (1995) Specification for textile labels requiring to be washed and/or dry cleaned.
  - BS 5815-1 2005 Sheets, sheeting, pillowslips, towels, napkins, counterpanes and continental quilt secondary covers suitable for use in the public sector. Specification for sheeting, sheets and pillowcases.
  - BS 5815-3 1991 (1999) Sheets, sheeting, pillowslips, towels, napkins, counterpanes and continental quilt secondary covers suitable for use in the public sector. Specification for counterpanes and continental quilt secondary covers including flammability performance.
  - BS 5852 2006 Method of test for the assessment of the ignitability of upholstered seating by smouldering and flaming ignition sources.
  - BS 5866-1 1990 (1998) Blankets suitable for use in the public sector. Specification for wool and wool/polyamide blankets.
  - BS 5866-2 1991 (1998) Blankets suitable for use in the public sector. Specification for cotton leno cellular blankets.
  - BS 5866-3 1991 (1998) Blankets suitable for use in the public sector. Specification for synthetic fibre cellular blankets.
  - BS 5866-4 1991 (1998) Blankets suitable for use in the public sector. Specification for flammability performance.
  - BS 5867-2 1980 (2002) Specification for fabrics for curtains and drapes. Flammability requirements.
  - BS 6807 2006 Methods of test for assessment of the ignitability of mattresses, upholstered divans

and upholstered bed-bases with flaming types of primary and secondary sources of ignition.

- BS 7175 1989 (1994) Methods of test for the ignitability of bedcovers and pillows by smouldering and flaming ignition sources.
- BS 7176 1995 Specification for resistance to ignition of upholstered furniture for non-domestic seating by testing composites.
- BS 7177 1996 Specification for resistance to ignition of mattresses, divans and bed-bases.
- ISO 8191-1 & 2 Fire tests for upholstered furniture, have not been adopted by BSI and therefore do not carry a BS ISO number. Reference should be made to BS EN 1021-1 & 2.

# Appendix D – Quick reference to products and British Standards

Product	British Standard
Fixed screens	BS 476*
Upholstered furniture	BS 7176
Loose covers	BS 5852 ignition source 1
Divan beds and mattresses	BS 7177 ignition source 5 or 7
Pillows, quilts etc	BS 7175 ignition source 0 and 5
Pressure relief	BS 7175 ignition source 0 and 5
Blankets	BS 5866-4
Counterpanes	BS 5815-3
Curtains, drapes and blinds	BS 5438 or BS 5867

**Note:**

- \* Requires a surface spread of flame achieving Class 0. This is not a classification identified by any British Standard test. It is defined as the classification achieved by a material or composite product which is either:
- composed throughout by materials of limited combustibility; or
  - a Class 1 material when tested in accordance with BS 476-7, which has a fire propagation index (I) of not more than 12 and sub-index (i1) of not more than 6.

**Note**

The entire international, European and national technical specifications listed in this memorandum are available from: British Standards Institution, Customer Service Sales Department, 389 Chiswick High Road, London W4 4AL. Tel: 0208 996 7000.

## References

### Acts and regulations

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DCLG have developed a set of 11 guides to help people to comply with fire safety law, to help them carry out a fire risk assessment, and to help them to identify the general fire precautions that need to be in place. Visit the website above for further information.