



# SPOTLIGHT

## Fire testing of beds

There are many bed components that require flammability testing, often known as 'fire testing'.



These flammability tests check to make sure that the items are not readily flammable or ignitable. It is important to note that other aspects of fire behaviour such as rate of spread of flame and heat released once ignited are not covered in the tests described in this article.

### Flammability

Bedroom fires originating from smokers' materials motivated the UK government in the 1980s to insist on improved ignition resistance of domestic beds. Flammability compliance for the UK market is, therefore, a legal requirement. In the UK domestic market, there are two sets of requirements, as follows.

Firstly, fillings of all types – including foam, latex, non-foam and composites – must comply with the requirements of the UK Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended in 1989, 1993 and 2010).

Secondly, under the General Product Safety Regulations 2005, mattresses and bed bases must be 'safe'. To demonstrate this, the complete construction should pass the appropriate hazard rating of BS 7177:2008+A1:2011 – 'Specification for resistance to ignition of mattresses, mattress pads, divans and bed

bases'. The low hazard rating requires compliance with EN 597:1994 – 'Furniture – Assessment of the ignitability of mattresses and upholstered bed bases', part 1 (cigarette test) and part 2 (match test – shown in the photograph above). For the non-domestic sector – such as hotels, hospitals and barracks – products should comply with the medium, high or very high hazard classification of BS 7177:2008+A1:2011 subject to a risk assessment. See the section 'Assessing the risk' for further details.

Mattresses, mattress pads, cot or playpen mattresses, divans and upholstered bed bases (under BS 7177:2008+A1:2011) all require flammability labelling. The labels are fully illustrated in the specification. The word 'RESISTANT' shall appear on the border in white with a minimum letter height of 5mm. A smouldering cigarette symbol and a flaming match symbol shall appear in black on the central white area. The wording 'Conforms to BS 7177 for domestic use (low hazard)', or for 'medium hazard', 'high hazard' or 'very high hazard' as appropriate shall appear on the label. See figure 1 for an example of label which is for medium hazard.

## Assessing the risk

**Hazard category:** Low hazard (for domestic use). **Requirements:** Resistant to ignition source: smouldering cigarette as specified in

EN 597-1:1994. Resistant to ignition source: match flame equivalent as specified in EN 597-2:1994. **Typical examples:** Domestic dwellings (including non-motorised caravans).

**Hazard category:** Medium hazard.

**Requirements:** Resistant to ignition source: smouldering cigarette as specified in EN 597-1:1994. Resistant to ignition source: match flame equivalent as specified in EN 597-2:1994. Resistant to ignition source 5 as specified in BS 6807:2006, Clause 9.

**Typical examples:** Boarding schools, day centres, halls of residence at universities and colleges, holiday camp chalets, hospitals, hostels, hotels, old peoples' homes, residential schools and services' messes.

**Hazard category:** High hazard.

**Requirements:** Resistant to ignition source: smouldering cigarette as specified in EN 597-1:1994. Resistant to ignition source: match flame equivalent as specified in EN 597-2:1994. Resistant to ignition source 7 as specified in BS 6807:2006, Clause 9.

**Typical examples:** Certain hospital wards, hostels, hotels, offshore installations and old peoples' homes.

**Hazard category:** Very high hazard.

**Requirements:** Resistant to ignition source: smouldering cigarette as specified in EN 597-1:1994. Resistant to



Figure 1: An example of a label for beds and mattresses sold in the UK

ignition source: match flame equivalent as specified in EN 597-2:1994. Resistant to ignition source 7 as specified in BS 6807:2006, Clause 9. Additional requirements at the discretion of the specifier with high hazard requirements as a minimum.

**Typical examples:** Locked psychiatric accommodation and prison cells.

It should be noted that at all levels of hazard, BS 7177:2008+A1:2011 requires that all fillings pass the relevant tests specified in the UK Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

## Mattress toppers

The definition of a mattress in BS 7177:2008+A1:2011 is worded in such a way that it includes all items that are slept upon, including mattress pads and mattress toppers. A mattress topper is a product that is often sold to enhance or improve the comfort of an existing mattress. It is usually constructed with a foam or fibre filling or a natural filling and has an outer cover, although some toppers are just blocks of foam without a cover.

A case in the English courts in 2006 decided that all domestic mattress toppers that included a cover and filling made from foam or fibrous material should comply with the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended in 1989, 1993 and 2010), and feather-filled mattress toppers are included. The UK Government holds the view that mattress toppers or mattress pads should be treated in the same way as mattresses. This means that fillings should pass the appropriate ignition tests and the complete item should conform to the specification in BS 7177:2008+A1:2011 at the appropriate level of conformance.

## Mattress testing

A requirement for the testing of both faces of a mattress has now been included. Both surfaces shall be tested unless they are identical. This is applicable if it is possible to use both faces or sides as the sleeping surface and the ticking (sometimes called a 'cover') are different, or if the underlying fillings are different. A bed manufacturer will often provide a winter and a summer surface on the mattress.

The repeat testing of mattresses and the frequency of these tests is specified in BS 7177. Therefore, compliance requires testing on an ongoing basis, where previously it was a recommendation. Compliance with BS 7177 requires that the item carries the correct label.

## Headboards

There is often confusion about the flammability requirements for padded headboards. They are to be regarded as upholstered furniture if they contain a cover and a filling, and the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) apply. Materials from both faces of the headboard must be tested.

Upholstered footboards and upholstered side rails should also meet the regulations. Note that fabric on the reverse side of a headboard (normally facing the wall) is not regarded as a 'non-visible part' of the cover, and must be tested as a 'visible cover'. Likewise, fabric on the inner face of upholstered bed side rails is not regarded as a 'non-visible part' of the cover and must be tested as a 'visible cover'.

## Beds for pets

There is a growing market for upholstered beds and seats for pets, including large dogs. Many of these look like miniature pieces of furniture – in fact, they could be used by children or adults as seats, or even beds. If the pet bed or pet cushion is large enough to sit on and could be used on the floor, it may be regarded as a floor cushion. In SATRA's view, it would therefore have to conform to the cover and filling requirements of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

SATRA has already tested some pet beds, and would be pleased to extend this service to others who might need some assurances about fire safety of their products.

## How can we help?

**15 PER CENT DISCOUNT ON FIRST SATRA TEST** — [please click here](#).

Please [click here](#) for information on SATRA's furniture testing services. Email [furniture@satra.com](mailto:furniture@satra.com) to discuss how SATRA can help your company.

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