

Flame Retardants for Textiles

Description of test methods and their application

UK – Standards

- BS 4790; 1987
- BS 5438; 1989
- BS 5722; 1991
- BS 5852 Part 1&2; 1979/82
- BS 5852; 1990 (contract)
- BS 5867 Part 2; 1980
- BS 6807; 1996
- BS 7177; 1996

Flame Retardants for Textiles

Description of test methods and their application

BS 4790; 1987

1. Scope:

Determination of the effects of a small source of ignition on textile floor coverings (hot metal nut method)

2. Preparation of specimens:

3 specimens each of 300 mm x 300, including any backing or underlay that forms part of the final installation

3. Test procedure:

- the specimens shall be mounted in one of 3 ways which are as follows: method 1: loose laid method 2: fully adhered method 3: loose laid with underlay
- heat the nut to a temperature of 900 +/- 20°C in the muffle furnace
- mount the specimen on the floor of the test chamber as described in method 1 – 3
- place the heated nut onto the specimen within 3 sec of its removal from the furnace
- remove the nut from the specimen after it has been in contact with the specimen for 30 +/- 2 sec

4. Apparatus:

- test chamber
- hexagonal nut of grade A 2 with a mass of 30 +/- 3 g, and of a dimensions as specified for M 16
- muffle furnace, capable of heating the nut to 900°C

5. Assessment:

- after-flame time after the application of the nut
- afterglow time after removal of the nut
- measure and record the radius of the effects of ignition on the undersurface of the floor covering if observable

Flame Retardants for Textiles

Description of test methods and their application

BS 5438; 1989

Flammability of textile fabrics when subjected to a small igniting flame applied to the face or the bottom edge of vertically oriented specimens

1. Scope:

Methods of test for flammability of vertically oriented single textile fabrics or multi-layered fabrics, subjected to a small igniting flame.

This standard (vertical test / face ignition) describes methods of test for flammability of vertically oriented textile fabrics, e. g. curtains and drapes, subjected to a small igniting flame by observing and measuring the ease of ignition. Test specimens can be of a single or multi-layered fabric representative of the product in use.

2. Preparation of specimens:

Test 1: 220 mm x 170 mm, 3 specimens each in warp and weft direction
Test 2: 220 mm x 170 mm, 3 specimens each in warp and weft direction
Test 3: 670 mm x 170 mm, 3 specimens each in warp and weft direction

3. Test procedure:

Test 1: Method for assessing the shortest time that causes a test specimen to ignite. Apply the igniting flame on the test specimen for a duration of 2 sec. Stop the timing device when the test specimen ceases to flame and note whether ignition has taken place. If not, repeat the test with a fresh test specimen and with a flame application time of 3 sec. If the specimen does not ignite even then, repeat with flame application times of 4, 6, 8, and 10 sec until the shortest of these times is found. Then repeat the procedure but with the direction of the fabric at 180° to its initial direction. The test is carried out both with specimens in warp and weft direction.

Flame Retardants for Textiles

Description of test methods and their application

BS 5438; 1989

Flammability of textile fabrics when subjected to a small igniting flame applied to the face or the bottom edge of vertically oriented specimens

Test 2: Observe – after the application of the igniting flame for 10 sec whether, for any flame, any part of its lowest boundary reaches the upper edge or one of the vertical edges of the test specimen or whether a hole develops which extends to the upper edge or one of the vertical edges of the specimen. Repeat this test twice. If there is no flaming, apply the ignition flame for 2 sec and observe whether a hole develops. If yes, record the maximum extent of any hole in the horizontal or vertical direction whichever is the greater.

Test 3: Fit marker threads of white mercerized cotton spaced 5 mm and 15 mm away from the front of the test specimen (2 each in the vertical and horizontal direction). Apply the ignition flame for 10 sec and measure the severance of each marker thread.

4. Apparatus:

BS 5438; 1976

5. Assessment:

- a) occurrence of any flaming debris
- b) duration of flaming
- c) duration of afterglow
- d) glowing reaches one of the edges
- e) spread of flame or formation of holes, the maximum extent of any hole in the horizontal or vertical direction is to be recorded

Flame Retardants for Textiles

Description of test methods and their application

BS 5852 Part 1 & 2; 1979/82

Fire tests for furniture

The basis for the legal requirements for domestic upholstery comprises of the following articles for the segment upholstery fabrics:

- ◆ **Furnishings**
- ◆ **Beds, bolsters, mattress material**
- ◆ **Folding beds, futons**
- ◆ **Upholstery fabrics for baby furniture**
- ◆ **Garden furniture, also for use in caravans**
- ◆ **Sofa and seat cushions**

with the exception of:

- ◆ Sleeping bags
- ◆ Bed linen including quilts
- ◆ Sheets
- ◆ Pillow cases
- ◆ Curtains
- ◆ Carpets

Flame Retardants for Textiles

Description of test methods and their application

BS 5852 Part 1 & 2; 1979/82

Fire tests for furniture

Flame retardant finishes which are required to meet the domestic upholstery regulations must be resistant to the water soak procedure of BS 5651.

BS 5852 Part 1:

Fire tests for furniture; Methods of test for the ignitability by smokers' materials of upholstered composites for seating

BS 5852 Part 2:

Fire tests for furniture; Methods of test for the ignitability of upholstered composites for seating by flaming sources

Flame Retardants for Textiles

Description of test methods and their application

BS 5852 Part 1; 1979

Methods of test for the ignitability by smokers' materials of upholstered composites for seating

1. Scope:

For assessing ignitability of cover and filling combinations when subjected to either a smouldering cigarette or a lighted match as might be dropped accidentally.

2. Preparation of specimens:

2 specimens each of 800 +/- 10 mm x 650 +/- 10 mm Soaking acc. to BS 5651 The fabric to be tested is put into a spacious vessel filled with water, at a liquor ratio of 1 : 20, to which 0.5 g/l non-ionic wetting agent is added. The material to be tested is left in this liquor at a starting water temperature of 40 °C for 30 min. Then the specimen is taken out, rinsed at a liquor ratio of 1:20 for 2 min, dried at a suitable temperature and ironed at a temperature not exceeding 120°C.

3. Test procedure:

- a) Smouldering cigarette – ignition source 0 A smouldering cigarette (length approx. 68 mm, diameter approx. 8 mm, mass 1 g nominal, smouldering rate 12 +/- 3 min/50 mm), marked with 6 mm on both ends, is placed in position along the junction between the vertical backrest and horizontal seat surface.
- b) Match equivalent – butane flame ignition source 1 Allow the propane gas to burn the test combination for a period of 20 +/- 1 s, for this the burner tube is axially placed in position along the junction between the seat and back.

For a) and b) the specimen is backed with a combustible PUR foam

Flame Retardants for Textiles

Description of test methods and their application

BS 5852 Part 1; 1979

Methods of test for the ignitability by smokers' materials of upholstered composites for seating

4. Apparatus:

Match burner acc. to BS 5852

Butane gas

5. Assessment:

- a) Smouldering cigarette Observe for progressive smouldering, or flaming starting from the fabric cover or the inside of the upholstery filling. If progressive smouldering or if flaming of the upholstery is observed at any time within a period of one hour of the placement of the cigarette, the material does not meet the standard.
- b) Match equivalent Observe for flaming or progressive smouldering in the interior and/or cover and disregard flames, afterglow, smoking or smouldering that cease within 120 s of the removal of the burner tube. If flaming or smouldering of the upholstery components continues, the result is a fail. If flaming or progressive smouldering is not observed repeat the test.

Cases of progressive smouldering undetected from the outside have been reported. Immediately after completion of the test programme on the assembly dismantle and examine it internally for progressive smouldering. If this is present, record a failed result for the relevant test source.

Flame Retardants for Textiles

Description of test methods and their application

BS 5852 Part 2; 1982

Methods of test for the ignitability by smokers' materials of upholstered composites for seating

1. Scope:

For assessing ignitability of cover and filling combinations when subjected to flaming ignition sources in the form of butane flames or wooden cribs, approximating up to four double sheets of full size newspaper.

2. Preparation of specimens:

Cover fabric and interliner: 2 specimens of 1100 +/- 10 mm x 650 +/- 10 mm.

For the interliner test: using a flame retardant polyester cover fabric and filling material of non fire retardant polyurethane foam *Upholstery filling*: The thickness of the combination of upholstery composites must be 75 mm:

- if this is not the case the upper 75 mm of the cushioning assembly is tested
- where the filling is less than 75 mm thick the test piece shall be built up to the required thickness.

3. Test procedure: Ignition sources

Butane flame 2: 40 sec flame application time 145 mm flame height

Butane flame 3: 70 sec flame application time 240 mm flame height

Crib 4 of softwood (pinus silvestris) each 40 +/- 2 mm x 40 +/- 2 mm 10 sticks (40 +/- 2 mm x 6.5 +/- 0.5 mm x 6.5 +/- 0.5 mm) total weight 8.5 +/- 0.5 g

Flame Retardants for Textiles

Description of test methods and their application

BS 5852 Part 2; 1982

Methods of test for the ignitability of upholstered composites for seating by flaming sources

Crib 5 of softwood (pinus silvestris): Ignition source for the interliner test each 40 \pm 2 mm x 40 \pm 2 mm 20 sticks (40 \pm 2 mm x 6.5 \pm 0.5 mm x 6.5 \pm 0.5 mm) total weight 17 \pm 1 g

Crib 6 of the softwood pinus silvestris each 80 \pm 2 mm x 80 \pm 2 mm main crib 8 sticks (80 \pm 2 mm x 12.5 \pm 0.5 mm x 12.5 \pm 0.5 mm) ignition crib 8 sticks (40 \pm 2 mm x 6.5 \pm 0.5 mm x 6.5 \pm 0.5 mm) 2 ignition crib base sticks total weight 60 \pm 2 g

Crib 7 of the softwood pinus silvestris each 80 \pm 2 mm x 80 \pm 2 mm main crib 18 sticks (80 \pm 2 mm x 12.5 \pm 0.5 mm x 12.5 \pm 0.5 mm) ignition crib 6 sticks (40 \pm 2 mm x 6.5 \pm 0.5 mm x 6.5 \pm 0.5 mm) 4 ignition crib base sticks total weight 126 \pm 4 g

To the assembled crib after conditioning, add slowly 1,4 \pm 0,1ml of propan-2-ol to the centre of the lint. Within 2 min of adding the propan-2-ol, ignite the lint.

4. Apparatus:

Test rigs

Flame Retardants for Textiles

Description of test methods and their application

BS 5852 Part 2; 1982

Methods of test for the ignitability of upholstered composites for seating
by flaming sources

5. Assessment:

Ignition source 1: see BS 5852 Part 1

Ignition source 2 + 3: If flaming or progressive smouldering is observed on the surface or in the interior that continues to flame for more than 120 s after removal of the burner tube, record a failed result, or if any flame front reaches the extremities of the test specimen, record a failed result, too. If flaming or smouldering is not observed, repeat the test at a fresh position. A positive result finishes the test. Observe for a total of up to 30 minutes.

Ignition source 4 – 7: Observe for flaming or progressive smouldering in the interior and/or cover. Disregard flames, afterglow, or smouldering that cease within 10 min of the ignition of cribs 4 and 5, or within 13 min of the ignition of cribs 6 and 7. Observe for a total of up to 60 min. If flaming or progressive smouldering is observed record a failed result. If flaming or progressive smouldering is not observed, repeat the test. If flaming or progressive smouldering is not observed in this retest, record a pass results.

Cases of progressive smouldering undetected from the outside have been reported. Immediately after completion of the test programme, dismantle and examine it internally for progressive smouldering. If this is present, record a failed result for the relevant ignition source.

Flame Retardants for Textiles

Description of test methods and their application

BS 5852 Part 1 & 2; 1979/82

Fire tests for furniture

Method of test

	Definition of the ignition source	Ignition time	Flame	weight
<i>BS 5852 part 1; 1979</i>				
smouldering cigarette	0	12 +/- 3 min / 50 mm	-	-
gas flame	1	20sec	35 mm	
<i>BS 5852 part 2; 1982</i>				
gas flame	2	40 sec	145 mm	
gas flame	3	70 sec	240 mm	
wooden crib	4			8,5 g
wooden crib	5			17 g
wooden crib	6			60 g
wooden crib	7			126 g

Performance requirements

	Definition of the ignition source	duration of flame	smouldering	afterglow
<i>BS 5852 part 1; 1979</i>				
smouldering cigarette	0	< 1 h	< 1 h	-
gas flame	1	< 120 sec	< 120 sec	< 120 sec
<i>BS 5852 part 2; 1982</i>				
gas flame	2	< 120 sec	< 30 min	< 30 min
gas flame	3	< 120 sec	< 30 min	< 30 min
wooden crib	4	< 10 min	< 1 h	< 1 h
wooden crib	5	< 10 min	< 1 h	< 1 h
wooden crib	6	< 13 min	< 1 h	< 1 h
wooden crib	7	< 13 min	< 1 h	< 1 h

Flame Retardants for Textiles

Description of test methods and their application

BS 5852; 1990

Assessment of the ignitability of upholstered seating by smouldering and flaming ignition sources

1. Scope:

Methods of test for assessment of the ignitability of upholstered seatings by smouldering and flaming ignition sources. This standard is a revision and development of BS 5852: Part 1 & 2

3. Test procedure:

The ignition sources 2 – 7 are the same as those given in BS 5852 Part 2, but ignition sources 0 and 1 are as given in BS EN 1021-1; 1994 and BS 1021-2; 1994 respectively as these 2 standards supersede these particular parts of BS 5852; 1990. The main difference being between both test is, that the match flame equivalent specified in BS EN 1021-2 has a flame application time of 15 seconds.

hazard categories	low hazard	medium hazard	high hazard	very high hazard
Test method	BS EN 1021 - 1 & 2	BS EN 1021 - 1 & 2 BS 5852: 1990	BS EN 1021 - 1 & 2 BS 5852: 1990	BS EN 1021 - 1 & 2 BS 5852: 1990
Requiements	smould. cigarette match flame	smould. cigarette match flame ignition source: 5	smould. cigarette match flame ignition source: 7	smould. cigarette match flame ignition source:2x7
Typical examples	schools, museums universities, offices exhibitions,	hotel bedrooms, public buildings, restaurants, bars, hospitals, casinos	sleeping accomo- dation in certain hospital wards, offshore installat.	prison cells

Flame Retardants for Textiles

Description of test methods and their application

BS 5722; 1991

1. Scope:

Flammability of fabrics for sleepwear and dressing gowns. This standard specifies flammability performance requirements for fabrics, including multi-layer fabrics and fabric assemblies, for use in the production of sleepwear and dressing gowns.

2. Preparation of specimens:

3 test specimens each of 670 mm x 170 mm in warp and weft direction for test 3 of BS 5438 or 3 test specimens each of 220 mm x 170 mm in warp and weft direction for test 2 of BS 5438

3. Test procedure:

Test to be carried out acc. to BS 5438, i. e. small igniting flame applied to the face of vertically oriented specimens; ignition time 10 sec.

4. Apparatus:

BS 5438; 1976

5. Assessment:

The textile material shall comply with the requirements of BS 5438 Test 2 & 3. If the assessment by test 2 is not sufficient, test 3 shall be used to assess compliance. Non of the specimes shall sever the 300 mm trip thread or 600mm trip thread in less than 25 sec or 50 sec respectively.

Flame Retardants for Textiles

Description of test methods and their application

BS 5867 Part 2; 1980

1. Scope:

Methods for assessing the burning behaviour; Specification for fabrics for curtains and drapes – Part 2 – FR – requirements

Flammability requirements for fabrics and fabric assemblies for use in the production of curtains, drapes and window blinds when tested by the methods specified in BS 5438 : 1976 (vertical test / face ignition). Where curtains or drapes are to be produced in a multi-layer fabric construction, it is essential to test the fabrics in the combination in which they are to be used.

2. Preparation of specimens:

type A: 3 specimens each of 670 mm x 170 mm in warp and weft direction
type B: 3 specimens each of 220 mm x 170 mm in warp and weft direction
type C: 16 specimens each of 220 mm x 170 mm in warp and weft direction

All fabrics should be tested both before and after the laundry procedure specified in BS 5651 (at 74 °C).

3. Test procedure:

type A: Fabrics shall be tested on their flame-retardant effect after being subjected to the appropriate cleansing or wetting procedure acc. to BS 5438 Test 3 using a 10 sec flame application time. Only the face of the fabric – 3 specimens each in warp and weft direction – should be tested.

type B: Except where specified that testing after an appropriate cleansing or wetting procedure is unnecessary, all fabrics shall be tested after being subjected to the appropriate cleansing or wetting procedure.

Flame Retardants for Textiles

Description of test methods and their application

BS 5867 Part 2; 1980

In all cases, only the face of the fabric shall be tested, if this is apparent. Alternatively, only that face which is shown by pre-testing to spread flame the faster should be tested. 3 specimens each in warp and weft direction shall be tested in accordance with test 2 of BS 5438, using a 15 sec flame application time.

type C: All fabrics shall be tested before and after the cleansing procedure specified for DHSS use, i. e. 50 cycles of the appropriate laundry procedure specified in BS 5651. Both the face and back of the fabric shall be tested by using a flame application time of 5, 15, 20 and 30 sec.

4. Apparatus:

BS 5438

5. Assessment:

type A: Using test 2 of BS 5438 If the lowest boundary of any flame or part of any hole does not reach the upper edge or either vertical edge, the fabric should be deemed to comply with the requirements for type A. Should the fabric fail using BS 5438 test 2, then test using test 3 on 6 specimens with a flame application time of 10 sec. If one or both vertically mounted marker threads or one horizontally positioned thread of 4 specimens are severed, only the two horizontally or one horizontally and one vertically mounted marker thread of the remaining 2 specimens should be severed. If all threads are severed during testing, the fabric should be deemed not to comply with the requirements for type A.

Flame Retardants for Textiles

Description of test methods and their application

BS 5867 Part 2; 1980

type B: No part of any hole nor any part of the lowest boundary of any flame should reach the upper edge or either vertical edge. There should be no separation of any flaming debris. If this occurs with 1 specimen only, a further 6 specimen shall be tested. If all 6 specimen comply, the requirements for type B are met

type C: No part of any hole nor any part of the lowest boundary of any flame should reach the upper edge or either vertical edge. The afterflame and afterglow times shall not exceed 2.5 sec and there should be no separation of any flaming debris. Complying with the above requirements, the fabric shall be deemed to comply with the requirements for type C.

-All fabrics should be submitted to the appropriate cleansing or wetting procedure specified in BS 5651 depending on the care instructions of the fabric manufacturer. All fabrics used by the DHSS (Department of Health and Social Security) should be tested after 50 laundry cycles specified in BS 5651. The IEC test detergent without perborate should be used.

-If the fabric is to be labelled as being unsuitable for cleansing by any method the water soaking procedure specified in BS 5651 should be carried out.

-If the fabric is composed entirely of nylon, polyester or modacrylic fibre to which a flame retardant treatment has not been applied, it is not necessary to test after a cleansing or wetting procedure.

Flame Retardants for Textiles

Description of test methods and their application

BS 6807 Section 2; 1996

Primary ignition sources

1. Scope:

Assessment of the ignitability of mattresses, upholstered divans and upholstered bed bases with flaming types of primary and secondary sources of ignition.

2. Preparation of specimens:

The mattress test specimen shall be rectangular in shape and of minimum size 450 mm x 350 mm x nominal thickness of the finished mattress.

3. Test procedure:

The sequence of tests using the primary flaming ignition sources 2 to 7 described in BS 5438.

Test	primary ignition sources	distance below mattress
2	butane gas flame	10 +/- 1mm
3	butane gas flame	15 +/- 1mm
4	pine wood crib	20 +/- 3mm
5	pine wood crib	30 +/- 3mm
6	pine wood crib	60 +/- 3mm
7	pine wood crib	100 +/- 3mm

-Butane flame test: ignition sources 2 and 3:

adjust the gas flow to the rate given in BS 5852. the test can be carried out on top of or below the test specimen. place the burner tube on top of or below the test specimen as applicable so that the flame is not less than 50 mm from any edge or marks left by any previous test. allow the gas to burn for the time given in BS 5852.

Flame Retardants for Textiles

Description of test methods and their application

BS 6807 Section 2; 1996

Primary ignition sources

-Wooden crib test: ignition sources 4,5,6 and 7:

to the assembled crib after conditioning, add slowly 1,4 +/- 1 ml of propan-2ol to the centre of the lint. Within 2 min of adding the propan-2-ol, ignite the lint. Place the crib as follows:

- a) for a test on top of the test specimen not less than 170 mm from any edge or marks left by any previous test, the distance being measured from the centre of the crib.
- b) for a test below the test specimen at the distance below the test specimen given in the table on the previous side for mattresses, or at floor level for upholstered divans and upholstered bed bases.

4. Apparatus:

test rig according to BS 6807 match burner according to BS 5852 cribs of softwood

5. Assessment:

-Butane flame test: ignition sources 2 and 3:

If progressive smouldering ignition or flaming ignition of the test specimen is observed, extinguish the test specimen and discontinue testing:

smouldering ignition:

- * any test specimen that produces externally detectable amounts of smoke, heat or glowing 15 min after removal of the burner tube
- * any test specimen that shows evidence of charring more than 100 mm in any direction, from the nearest part of the original position of the source

Flame Retardants for Textiles

Description of test methods and their application

BS 6807 Section 2; 1996

Primary ignition sources

flaming ignition:

- * any test specimen that continues to flame for more than 120 sec after removal of the burner tube

If progressive smouldering or flaming ignition of the test specimen is not observed, repeat the test at a fresh position. If progressive smouldering or flaming ignition is not observed on the repeat test, record non-ignition for the ignition source.

- Wooden crib test: ignition sources 4,5,6 and 7:

If progressive smouldering ignition or flaming ignition of the test specimen is observed, extinguish the test specimen and discontinue testing:

smouldering ignition:

- * any test specimen that produces externally detectable amounts of smoke, heat or glowing 60 min after ignition of the crib
- * any test specimen that shows evidence of charring more than 100 mm in any direction, from the nearest part of the original position of the source

flaming ignition:

- * source 4 and 5: any test specimen that continues to flame for more than 10 min after ignition of the crib
- * source 6 and 7: any test specimen that continues to flame for more than 13 min after ignition of the crib

If progressive smouldering or flaming ignition of the test specimen is not observed, repeat the test at a fresh position. If progressive smouldering or flaming ignition is not observed on the repeat test, record non-ignition for the ignition source.

Flame Retardants for Textiles

Description of test methods and their application

BS 6807 Section 3; 1996

Secondary ignition sources of known bed covers

1. Scope:

Assessment of the ignitability of mattresses, upholstered divans and upholstered bed bases with flaming types of primary and secondary sources of ignition.

2. Preparation of specimens:

The mattress test specimen shall be rectangular in shape and of minimum size 450 mm x 350 mm x nominal thickness of the finished mattress.

3. Test procedure:

The sequence of tests using the primary flaming ignition sources 2 to 7 described in BS 5438.

Test	primary ignition sources	distance below mattress
2	butane gas flame	10 +/- 1mm
3	butane gas flame	15 +/- 1mm
4	pine wood crib	20 +/- 3mm
5	pine wood crib	30 +/- 3mm
6	pine wood crib	60 +/- 3mm
7	pine wood crib	100 +/- 3mm

-Butane flame test: ignition sources 2 and 3:

adjust the gas flow to the rate given in BS 5852. the test can be carried out on top of or below the test specimen. place the burner tube on top of or below the test specimen as applicable so that the flame is not less than 50 mm from any edge or marks left by any previous test. allow the gas to burn for the time given in BS 5852.

-Wooden crib test: ignition sources 4,5,6 and 7:

to the assembled crib after conditioning, add slowly 1,4 +/- 1 ml of propan-2-ol to the centre of the lint. Within 2 min of adding the propan-2-ol, ignite the lint. Place the crib as follows:

Flame Retardants for Textiles

Description of test methods and their application

BS 7177; 1996

Specification for resistance to ignition of mattresses, divans and bed bases

1. Scope:

This standard specifies the requirements for the resistance to ignition of mattresses, divans and bed bases when exposed to different ignition sources

2. Preparation of specimens:

- * Sample size acc. to respective norm
- * Articles for “high hazard” and “very high hazard” must be soaked before the examination: The fabric to be tested is laid down into water with a liquor ratio of 20:1 in a sufficiently large and flat container (starting temperature $40^{\circ}\text{C} \pm 1^{\circ}\text{C}$), to which 0.5 g/l of a non-ionic wetting agent is added. The specimen must be completely under water. After 30 min, the specimen is taken out and rinsed with water in a liquor ratio of 20:1 for 2 min and afterwards dried with a method suitable for the fabric. If the specimen has been folded before immersion, it must be unfolded before rinsing.

3. Test procedure:

- * Testing procedure and equipment acc. to respective specifications

4. Apparatus:

- * Match burner acc. to EN 597-2 (BS 5852)
- * Cigarette with the following measurements:

length:	70 ± 4 mm
diameter:	8 ± 0.5 mm
weight:	1 ± 0.1 g
burning time:	12 ± 3 min/50 mm