



Department
for Business
Innovation & Skills

**FURNITURE AND FURNISHINGS
(FIRE) (SAFETY) REGULATIONS
1988**

**Consultation on proposed
amendments to Schedule 5 - the
Match Test - Part 1 and Schedule 4
- the Cigarette Test**

AUGUST 2014

Contents

1. Foreword from Jo Swinson, MP	5
2. How to respond	7
3. Additional copies	7
4. Confidentiality & Data Protection	8
5. Help with queries	9
6. The proposals	10
The FFRs' Flammability Tests	11
7. Consultation questions	18
8. What happens next?	19
Annex 1: Brief list of reference material regarding the effects of FRs on health/environment	20
Annex 2: Brief summary of results of comparing Schedule 5 Part 1 of the FFRs and the new proposed match test & indicative exemptions list for unregulated materials within 40mm of the cover	22
Annex 3: Results of FIRA's research into the proposed test changes	25
Annex 4: Additional background detail	26
Annex 5: Consultation principles	28
Annex 6: List of individuals/organisations consulted	29
Annex 7: Impact Assessment of proposed amendments to schedule 5 - the match test - part 1 and schedule 4 - the cigarette test - of the furniture and furnishings (fire) (safety) regulations 1988	31
Impact Assessment (IA)	31
Summary: Intervention and Options	31
RPC Opinion:	31
Evidence Base	37
Annex 8: Response form	57

Consultation on Proposed Amendments to Schedule 5 - The Match Test - Part 1 - and Schedule 4 - The Cigarette Test - of The Furniture and Furnishings (Fire) (Safety) Regulations 1988

Brief explanation of what this consultation seeks to achieve:

The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (FFRs) set levels of fire resistance for domestic upholstered furniture, furnishings and other products containing upholstery. This consultation sets out the Government's intention to change the specification for the match test and the requirements for the cigarette test (both for covering fabrics) in the FFRs and seeks stakeholders' views.

In essence, the new specification will change the required test filling material in the match test from a non-fire retardant polyurethane foam to a combustion-modified foam. BIS believes this can result in a reduction of up to 50% of flame retardant chemicals often currently used to meet this test. (Also, with the utilisation of new and existing technologies which the changes will make viable, there could be a 100% reduction.) This will bring benefits to health and the environment, as well as substantial savings to manufacturers, suppliers and retailers. In addition, BIS intends to exclude most cover fabrics from the cigarette test requirement (on the grounds that any fabric which passes the match test will also pass the cigarette test).

The FFRs were made using the power to make safety regulations under section 11 of the Consumer Protection Act 1987. Section 11(5) of the same Act requires the Secretary of State to consult with various interests, and this consultation document, which will be made available to stakeholders and to other formal and informal contacts, satisfies that requirement.

Issued:	7 th August 2014
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Respond by:	7 th October 2014
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This consultation is relevant to: the furniture industry, regulatory bodies covering the industry, test houses, other Government Departments, Trading Standards, local authorities, fire safety services, and consumers.

The Devolved Administrations of Scotland, Wales and Northern Ireland have been consulted in the preparation of these proposals.

The Government of the Republic of Ireland was also consulted. The Republic of Ireland has furniture flammability regulations near-identical to the UK's. Their Government has indicated it approves of the UK's proposed changes and intends to make the same changes to its own regulations.

1. Foreword from Jo Swinson, MP



The document you are about to read represents the results of around two years of truly collaborative work between BIS, industry, enforcement authorities, the fire rescue services, other Government Departments and international experts in product testing and chemicals research.

The UK is rightly proud of the record of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (FFRs) in saving lives and preventing fires. Back in the 1980s, we responded to the tremendous challenge of making domestic upholstered furniture safer from fires. Foam fillings had replaced natural, fire-resistant, materials such as horse hair, providing cheap furniture that everyone could afford. However, the price was greater flammability. The FFRs strengthened the existing requirements for making cover fabrics resistant to ignition and introduced a new flammability requirement for foam fillings. The result has been that fires and lives lost have rapidly declined.

For the past few years, in collaboration with all stakeholders, BIS has been reviewing the FFRs. Initially, this was on the basis that they are fit for purpose but need updating. This work is still on track. However, over the past two years, we have become aware of a growing concern about the actual, potential and perceived negative effects of some brominated flame retardants on health and the environment. Evidence suggests that when brominated flame retardants break down into their constituent parts, they may get into the food chain, children's blood and mother's breast milk. In California, for example, this has led to a change to their furniture flammability standard that should lead to a complete absence of flame retardants in domestic furniture.

Although the FFRs do not stipulate the use of flame retardants, in practice they are the most cost-effective means for manufacturers to meet the requirements. On the whole, the chemicals used in foam fillings are considered benign, so we looked at ways to bring about a reduction in those that appear in cover fabrics. This was a huge challenge, because we were committed to maintaining our high standards of fire safety.

In short, this consultation is on our resulting proposal that in future the FFRs' match test will require cover fabrics to be tested not over the current highly-flammable prescribed test foam but instead over the fire-resistant variety found in the finished product. The result, we believe, should bring about a reduction in flame retardant usage by up to 50%, and provide the basis for new technologies currently not applicable to reduce that to nothing in time. It could also bring considerable savings to industry of up to £50m per year. In addition, we are proposing that the cigarette test be dropped for any fabrics that pass the match test, because none such have ever failed. This will also bring savings to industry.

The fear has been expressed that if we reduce flame retardants, surely products will be less safe? In fact, future products will be safer from fires. This is partly because the new test will require additional materials that now appear in products, some highly flammable, to be tested. Also, the new test will remove a current, unforeseen, testing anomaly that means some fabrics which pass under test conditions may be ignitable in the finished product.

I look forward to hearing your views.

Jo Swinson, MP

2. How to respond

1. When responding, please state whether you are doing so as an individual or representing the views of an organisation. If you are responding on behalf of an organisation, please make it clear who the organisation represents by selecting the appropriate interest group on the consultation form and, where applicable, how the views of members were assembled.
2. The Consultation Response form is available electronically at www.gov.uk/government/consultations/furniture-fire-safety-regulations-proposed-amendments (until the consultation closes). The form can be submitted online/by email or by letter to:

Terry Edge
Europe Reform Directorate
Department of Business, Innovation and Skills
4th Floor, Orchard 1
1 Victoria Street
London SW1H 0ET
Tel: 020 7215 5576
Email: terry.edge@bis.gsi.gov.uk

3. A list of those organisations and individuals consulted is at Annex 6. We welcome suggestions of any others who may wish to be involved in this consultation process.

3. Additional copies

4. You may make printed copies of this document without seeking permission. BIS consultations are digital by default.
5. The standard electronic version is at: www.gov.uk/government/consultations/furniture-fire-safety-regulations-proposed-amendments
6. Other versions of the document in Braille, other languages or audio-cassette are available on request.

4. Confidentiality & Data Protection

7. Information provided in response to this consultation, including personal information, may be subject to publication or release to other parties or to disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004). If you wish for information, including personal data that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence.

8. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

5. Help with queries

9. Questions about the policy issues raised in the document should be addressed to:

Terry Edge
Europe Reform Directorate
Department of Business, Innovation and Skills
4th Floor, Orchard 1
1 Victoria Street
London SW1H 0ET
Tel: 020 7215 5576
Email: terry.edge@bis.gsi.gov.uk

The consultation principles are at Annex 5.

6. The proposals

The existing regulations

10. The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended in 1989, 1993 and 2010) (FFRs) are made in accordance with Section 11 of the Consumer Protection Act 1987.
11. The FFRs set levels of fire resistance for new and second-hand domestic upholstered furniture, furnishings and other products containing upholstery supplied in the UK. The FFRs apply to all persons supplying materials for use in furniture and furnishings through to supply of the finished article. They also apply to persons who hire out furniture in the course of a business, including accommodation such as holiday homes and residential furnished lettings. They also apply to charities supplying furniture in the course of business.
12. The FFRs provide the highest levels of fire safety for domestic upholstered furniture in the world (only the Republic of Ireland has similar requirements). They save around 54 lives per year and prevent around 800 injuries and 1000 fires¹. They receive strong support from consumers, industry, the fire services and enforcement authorities.
13. Product ranges covered by the FFRs include any of the following which contain upholstery:
 - Furniture intended for private use in a dwelling, including children's furniture
 - Beds, head boards of beds, mattress fillings (of any size)
 - Nursery furniture
 - Garden furniture which is suitable for use in a dwelling
 - Furniture in caravans
 - Scatter cushions, seat pads, pillows
 - Loose and stretch covers
14. The FFRs do not apply to:
 - Sleeping bags, bed clothes, loose covers for mattresses, pillowcases, curtains, carpets
 - Furniture made before 1950

¹ "A statistical report to investigate the effectiveness of the Furniture and Furnishings (Fire) (Safety) Regulations 1988" – Greenstreet Berman, December 2009: <http://www.berr.gov.uk/files/file54041.pdf>

- Exports of furniture

15. The main flammability requirements of the FFRs are provided by:

BS 5852: Part 1: 1979: “Methods of test for the ignitability by smokers’ materials of upholstered composites for seating”, and

BS 5852: Part 2: 1982: “Methods of test for the ignitability of upholstered composites for seating by flaming sources”

- as modified by the Schedules to the FFRs.

16. Enforcement of the FFRs is the responsibility of Trading Standards (in accordance with powers provided by The Consumer Protection Act 1987). The FFRs require suppliers to provide Trading Standards, upon request, with details of, e.g. the name and address of the principle place of business of the manufacturer or importer who first supplied the product in the UK; all the filling materials and cover materials included in the product.

The FFRs’ Flammability Tests

17. There are four main flammability tests in the FFRs: two for cover fabrics - 'match' and 'cigarette' - and two for fillings - for foam and non-foam materials. The FFRs do not stipulate the route to compliance but in practice most manufacturers use flame retardant chemicals (FRs) for the match test for most fabrics. The potentially more harmful chemicals - e.g. brominated flame retardants (BFRs) - are used in/under cover fabrics. The current match test is set out in Schedule 5 of the FFRs, in three parts - the first for covering fabrics, the second for stretch covers, and the third for invisible lining materials.
18. A key factor is that the current match test requires cover fabrics to be tested over non-combustion-modified polyurethane foam, unlike the equivalent EU standard, EN 1021 Part 2, which requires the actual final composite to be assessed (e.g. as is found in final UK products).

The need for change

19. There is growing evidence that FRs, particularly BFRs, can be harmful to health and the environment, especially when they break down into individual constituents, e.g. by wear or through burning (see Annex1 for a list of papers and research in this subject). The most common BFR found in UK furniture, DecaBDE, has been made a Substance of Very High Concern under the EU’s chemical legislation, REACH. The chemical industry has replaced DecaBDE with a new BFR; however, it is possible that this too in time will be found to be a substance of concern. Aside from health and the environment, prices for chemicals used to meet the requirements of the match test have been rapidly rising in recent years; partly, this is due to the restrictions placed by REACH on BFRs, i.e. the chemical industry regularly produces a new BFR, for which it demands a higher price than the previous BFR.
20. Strong consumer concern, along with lobbying by the Green Science Policy Institute in the USA, recently resulted in California’s (and de facto the USA’s) furniture flammability standard being changed so that in future it will exclude the use of FRs. Similar concern is growing in UK consumers. While BIS believes that the new California standard offers less fire safety than the FFRs, it is wise to anticipate growing consumer opposition to BFRs in products.

21. In addition, it is likely that in the near future EU legislation will require that furniture containing potentially harmful substances (including BFRs) be disposed of safely. This could be an expensive process, especially in light of there currently being only two incinerators in the UK that can deal with the safe disposal of such products (e.g. in sofas).
22. Finally, the FFRs are acknowledged as a barrier to trade in the EU but are allowed on safety grounds. For many years, the European Commission, recognising that house fires are not confined to the UK, tried to raise the EU standard to UK levels. However, a chief obstacle to this was some Member States' objection to FRs in furniture. The Commission has recently indicated strongly that it will not make any more efforts to raise EU standards while the issue of FRs in furniture remains contentious.

Main points of the proposed changes

23. Main points are:
 - Match test requirement for test filling materials to change from non-combustion modified foam to combustion modified foam, in one of two forms (see 24 below).
 - Exemption from the cigarette test for any fabric which passes the match test.
 - Removal of the cigarette test for invisible linings.
 - Regulation of lining fabrics which are directly behind the visible cover by incorporation into the new visible covers test (with the exemption of non-woven polypropylenes with weights of less than 90g/m² e.g. Corovin).
 - Requirement to test currently unregulated materials within 40mm of the surface of the product via a modified version of the match test (see 27-29 and 34 below).

Details of the proposed changes

24. Match resistance of visible covers will be established by testing over two types of filling:
 - Filling 1: Combustion modified polyurethane foam, as in the current test foam required for Schedule 5 Part 3 of the FFRs* (as amended 1989).
 - Filling 2: Combustion modified foam, as in the current test foam required for Schedule 5 Part 3*, plus 200 g/m² thermally bonded sheet polyester fibre compliant with Schedule 2 Part 1 but not treated with a flame retardant.

(*Further description: melamine modified conventional polyether polyurethane foam; compliant with Schedule 1 Part 1; specification as in accordance with BS 3379:2005; density 24-26Kg/m³; hardness 115-150N; fatigue Class A.)

25. To operate as follows:
 - Covers that meet the requirements using Filling 2 can be taken as also meeting the requirements using Filling 1.
 - Covers that fail when tested over Filling 2 may be tested over Filling 1 provided that in the final product the cover material will be directly over foam (however, this does not include laminated or quilted fabrics over a very thin layer of foam).

- Covers that will be used over any other filling than foam, or used where no filling is present (assuming the product contains some form of upholstery), will require testing over Filling 2.
- For covers which do not meet the composition requirements of being >75% by weight of cotton, flax, viscose, modal, silk or wool, used separately or together and not coated with polyurethane or a polyurethane preparation and which have a lining fabric directly behind them, the visible cover in conjunction with the lining fabric shall be tested together over the appropriate filling.

Changes to the regulation of lining fabrics

26. The proposal could present some issues where lining fabrics are required, i.e. because the lead time for supply could be increased by approximately one week. This is particularly the case for materials such as downproof covers. However, current market knowledge suggests that the outer covers for these types of compositions will not in fact present problems. The overall changes proposed may lead to removal of some lining materials. They also provide an exemption for non-woven polypropylenes with weights of less than 90g/m². (See Annex 2 for further details of the proposed test, including an indicative list of materials that can be exempted from it.)

Inclusion of currently unregulated materials within 40mm of the outer cover within the upholstery composite

27. This change may marginally increase testing costs, the exact degree of which will depend upon the number of materials present in any particular piece of furniture. But it should be remembered that these materials can be pre-certified on a material type basis, e.g. if 20 different weights of fibre board are produced with the same surface characteristics and ancillary finish, and the thinnest, lightest fibreboard passes the test, it is reasonable to assume that all 20 types of board will also pass. Similarly, BIS also intends to exempt from further testing:

- any standard materials which pass the test, and
- any materials which are placed under a standard material (cover fabric, lining fabric or other components) which passes the relevant test and which does not form a hole.

(See Annex 2 for further details, results of initial testing of these materials by Steve Owen of Intertek and an indicative materials exemption list.)

28. The fact is that some highly flammable unregulated materials are currently placed in products which when coming into contact with a flame quickly negate the flame-resistance of the compliant cover fabric and foam filling. BIS is keen to ensure that in future products will not be more flammable than consumers expect them to be.
29. As a further guidance measure, BIS/Intertek widely circulated an explanatory document in February 2014, setting out the details of the proposed test and the benefits it can bring (along the lines described above).

Evidence of the viability of the new match test

30. Along with the testing undertaken by Steve Owen (see above), the Furniture Industry Research Association (FIRA) also conducted testing research on the proposed match test. Their results corroborate the viability of the new test and the approximate range of FR-reduction envisioned by BIS (see Annex 3).

More details on the benefits of the proposal changes

Greener UK furniture will be available sooner

31. UK retailers and manufacturers have been reporting growing UK consumer concern about the actual and potential negative effects of FRs on human health and the environment. In November 2013, California introduced a new furniture flammability standard (TB117-2013) that means its furniture will not contain FRs in future. While BIS believes this standard offers poor fire safety compared with the FFRs, it is important nevertheless to note that public opinion in the USA contributed strongly to the change.

Cost savings

32. The new match test, along with the removal of the cigarette test for fabrics that pass the match test, could bring savings to industry of roughly up to £50m per year (see Impact Assessment for details). Bringing forward this change means industry will therefore benefit from these savings earlier. BIS would like to stress, however, that this is very much an estimate and that we are looking to consultation returns to provide more accurate figures.

European flammability provisions

33. While the European Commission has for many years expressed the desire to raise EU standards to the levels of the FFRs, it has always acknowledged that the main barrier to doing so is some Member States' opposition to FRs in furniture. As said above, the UK is obliged to notify the European Commission (which in turn notifies all Member States) of any intended changes to national regulations like the FFRs. Therefore, notifying Europe with a change that greatly reduces dependence on FRs will help the Commission's cause. Conversely, there is the distinct possibility that if we go back to Europe with an unchanged match test, we will receive strong criticism for perpetuating a trade barrier based on a test that requires the use of test foam that is in effect illegal in the UK and of a type that is not found in the final product.

Inclusion of currently unregulated materials

34. The new test will include currently unregulated materials, such as webbing and card, that appear in furniture products within 40mm of the cover, and which can be highly flammable. The BBC 'Fake Britain' programme (broadcast January 2014) has made retailers highly concerned about providing furniture which could be unsafe; therefore, the new test will ensure only fully fire-safe products find their way into consumers' homes. (See Annex 2 for further background details, including a chart of initial testing undertaken by Steve Owen of Intertek on materials likely to be found in products.)

Correcting unforeseen failures under the current match test

35. The new test will also solve the unforeseen situation in which some modern fabrics pass the current test in test conditions but can fail to perform in the finished product. Essentially, the current test requires cover fabrics to be placed directly against the test foam on the test rig. This means that on application of the small flame for 20 seconds, a

dome of FR gas forms over the burn area, sealing it from outside oxygen. However, in the finished product, there are often elements present, e.g. a layer of fibre wrap between the cover and the foam, which allow the burn hole to spread wider, which in turn allows oxygen in and the fabric to continue burning beyond the two-minute limit of the test requirement. This effect was not so problematic when the FFRs were introduced, since most covers then were made from natural fabrics such as cotton which form a char layer when burned. The majority of UK furniture cover fabrics are now man-made, however, and do not contain this moderating char effect. The new test removes this discrepancy between test conditions and finished product by a combination of combustion-modified foam and the requirement to include a fibre wrap layer between the test foam and the cover fabric (unless the finished product comprises fabric placed directly against foam) – see description of Filling 1 and Filling 2 above. BIS wishes to stress that this effect could not have been predicted and it was also understandably obscured by the fact that fabrics pass the required test and are therefore legally supplied.

Preventing insufficiently chemically treated products getting into UK homes

36. Trading Standards has discovered that significant amounts of cover fabrics for UK furniture are insufficiently treated with FRs by some chemical treatment processors. Because the current test composite can be sensitive to certain fabrics, there exists a perception in the industry that results are not reproducible for those types of fabrics. Also, that fabrics which are borderline in test are acceptable because the actual final composites will contain combustion modified fillings rather than the current non-combustion modified test foam. The non-combustion modified test filling has historically been considered as the margin of safety. Some processors then use this 'margin' to assume reasonable doubt upon failures in the current test, producing test passes for the fabrics. When Trading Standards use other test houses, however, the same fabric fails the test. In short, this means furniture has been reaching UK homes that is more ignitable than the consumer would expect. The new match test removes this margin of sensitivity, i.e. produces clear passes or fails. Borderline materials will still exist and will give similar borderline results but the perception of an acceptable risk of failure will be removed.

Disposal of products containing hazardous waste

37. Retailers and manufacturers are concerned about impending EU legislation that may require products, e.g. sofas, containing potentially harmful substances, including specified brominated FRs, to be disposed of safely. This is likely to be an expensive process; therefore, BIS is keen to provide manufacturers with a new match test as soon as possible, that should help reduce FR levels in furniture covers by around 50% (more with some fabrics).

Encouragement of new flame retardant technologies

38. Because the new test is a 'real life' one, i.e. does not require ignitability of cover fabric to cater for highly flammable foam beneath it, materials not currently suitable for use in UK furniture covers will become so. This includes, for example, inherently flame-resistant fibres. Also, existing and emerging barrier technologies should in time help to cut out FR use altogether.

Additional costs

40. BIS anticipates there will be some additional testing required for currently unregulated materials that appear within 40mm of the cover fabric; however:

- the test for unregulated materials is simple and cheap;
- given that many standard materials will always pass the test, BIS intends to publish regularly updated lists of materials which are therefore exempt from testing;
- materials placed under materials which are exempted and which are 'protective' placed will also be exempted;
- any additional costs will be greatly outweighed by savings made from reduced FR use and the exemption from the need for the cigarette test for most cover fabrics.

(See Annex 2 for further details.)

Bringing forward these changes

41. For the past few years, BIS has been reviewing the FFRs overall, working closely with all stakeholders. BIS acknowledges, therefore, that some stakeholders would prefer to be consulted once, not twice, on the amendments to the FFRs. However, there is no overlap between the new match and cigarette test changes and the rest of the amendments, i.e. industry will not face additional burdens because there is a split in the timing of the amendments. The new test represents the biggest change in the amendments, as well as the point of greatest potential costs savings to industry; therefore, it will benefit from being considered in isolation to the other proposed amendments.
42. Also, as noted above, California/USA has recently changed its furniture flammability standard to exclude the use of FR chemicals. FRs are a growing concern in the UK and represent a stumbling block to the EU standard being raised. For these reasons, BIS believes that an early statement of the UK's intention to reduce the amount of FRs in our furniture will be received positively by UK consumers and the Commission/Member States, to pave the way for the rest of the amendments to be received more positively at a later date.

Timing

43. Subject to the results of this public consultation, BIS proposes to implement these changes in **April 2015**.

Lead-in times

44. The new match test/cigarette test will include suitable lead-in times to a) allow industry to develop new compliant products, and b) to sell off existing stock (compliant with the current tests). The final lead-in period will be determined by the feed-back BIS receives during the consultation period but this may be around 12-18 months from the implementation date.

Help with estimates

45. BIS is aware that figures quoted in this document are very much rough estimates and we would be grateful therefore for more specific figures that industry might be able to supply. All such information will be kept anonymous and used to estimate over-all costs/savings to industry of the proposed changes (see "8. Consultation questions" below).

To discuss these proposed changes or comment on them please contact:

<p>Terry Edge - <i>for general points</i></p> <p>BIS, 4th Floor, Orchard One</p> <p>1 Victoria Street, London SW1H 0ET</p> <p>Tel: 0207 215 5576</p> <p>Email: terry.edge@bis.gsi.gov.uk</p>	<p>Steve Owen - <i>for technical questions</i></p> <p>Intertek,</p> <p>The Warehouse</p> <p>Brewery Lane, Leigh WN7 2RJ</p> <p>Tel: 01942 265700</p> <p>Email: steven.owen@intertek.com</p>
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7. Consultation questions

46. Below are the questions we would greatly appreciate your responses to. However, please enter your responses after each question where they are repeated in Annex 8. In addition, you will see there are some further more costs-focussed questions in the Impact Assessment at Annex 7: these too are repeated for responses in Annex 8.

Question 1: Do you think this proposal will achieve its aims of: helping to make UK furniture greener, save money to industry and making UK furniture more fire safe?

Questions 2: Do you think that paragraphs 19-2 accurately set out the need for a change to the current match test?

Question 3: Do you think the proposed changes are viable (paragraphs 23-29)?

Question 4: What are your views on the inclusion of currently unregulated materials (paragraphs 27-29)?

Question 5: Do you agree with the benefits BIS believes the changes will bring?

Question 6: What is your view on BIS's reasons for bringing forward the changes (paragraphs 41-42)?

Question 7: General rating of the proposals.

Question 8: Do you have any other comments that might aid the consultation process as a whole?

8. What happens next?

Following the conclusion of the consultation, BIS will publish a government response around mid-January 2015. This will provide detailed responses to all issues raised by consultees. The response will appear on the BIS website, including a link from the central BIS consultation webpages, with paper copies made available on request.

Assuming the proposed changes are agreed, the amended Regulations will be laid in Parliament around February 2015, with a commencement date of April 2015.

In addition, BIS will host an open day on 19th August 2014 at 1 Victoria Street, London SW1H 0ET. The purpose is to provide fuller details should they be required and to answer any questions you may have. If you would like to attend, please register your interest with:

John O'Shea, Tel: 020 7215 1285, email: John.O'Shea@bis.gsi.gov.uk.

Annex 1: Brief list of reference material regarding the effects of FRs on health/environment

Flame retardants in food

Scientific Opinion on Polybrominated Biphenyls (PBBs) in Food

<http://www.efsa.europa.eu/de/efsajournal/pub/1789.htm>

Scientific Opinion on Polybrominated Diphenyl Ethers (PBDEs) in Food

<http://www.efsa.europa.eu/en/efsajournal/pub/2156.htm>

Scientific Opinion on Hexabromocyclododecanes (HBCDDs) in Food

<http://www.efsa.europa.eu/fr/efsajournal/pub/2296.htm>

Scientific Opinion on Tetrabromobisphenol A (TBBPA) and its derivatives in food

<http://www.efsa.europa.eu/en/efsajournal/pub/2477.htm>

Scientific Opinion on Brominated Flame Retardants (BFRs) in Food: Brominated Phenols and their Derivatives

<http://www.efsa.europa.eu/en/efsajournal/pub/2634.htm>

Scientific Opinion on Emerging and Novel Brominated Flame Retardants (BFRs) in Food

<http://www.efsa.europa.eu/en/efsajournal/pub/2908.htm>

Flame retardants in humans, house dust, etc

Study on Toxic Exposure and Health Risks to US Firefighters

<http://www.meriresearch.org/RESEARCH/Publications/FirefighterStudyHighlights/tabid/361/Default.asp>

X

Indoor Contamination with Hexabromocyclododecanes, Polybrominated Diphenyl Ethers, and Perfluoroalkyl Compounds: An Important Exposure Pathway for People?



Harrad et al 2010
BFR review.pdf

***In Utero* and Childhood Polybrominated Diphenyl Ether (PBDE) Exposures and Neurodevelopment in the CHAMACOS Study**

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3569691/>

Prenatal Exposure to PBDEs and Neurodevelopment

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2866690/>

Prenatal Exposure to Organohalogens, Including Brominated Flame Retardants, Influences Motor, Cognitive, and Behavioral Performance at School Age

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2799472/>

Advisory Committee on Hazardous Substances: opinion on decabrominated diphenyl ether (decaBDE):

<http://archive.defra.gov.uk/environment/quality/chemicals/achs/documents/achs-decaBDE-opinion-100923.pdf>

Stockholm Convention: submissions from nations on (decaBDE):

<http://chm.pops.int/TheConvention/POPsReviewCommittee/Meetings/POPRC9/POPRC9Followup/decaBDESubmission/tabid/3570/Default.aspx>

Annex 2: Brief summary of results of comparing Schedule 5 Part 1 of the FFRs and the new proposed match test & indicative exemptions list for unregulated materials within 40mm of the cover

Brief summary of results of comparing Schedule 5 Part 1 and the new match test:

Initial testing was undertaken by Steve Owen (Intertek) towards confirming the arguments proposed in this document, resulting in the following key points:

- Fabrics which pass the current Schedule 5 Part 1 match test always pass the new test.
- With Schedule 5 Part 1 compliant covers, failures were found in final composites when used over easily ignitable items. When these items are removed, passes are achieved. Clearly, each type of easily ignitable item only needs to be tested once. Removing such items improves the overall fire performance of the product.
- Lining fabrics could change results of the new test and hence their inclusion is required.

Results of Initial testing:

Lining Fabrics

Outer cover	FR Treated	Lining Fabric	FR Treated	Filling Type	Cover only result	Cover + Lining fabric result
100% Cotton	Yes	100% Cotton	No	Sheet Fibre + PU	Pass	Pass
100% Polyester	No	100% Cotton	No	Sheet Fibre + PU	Pass	Fail
100% Cotton	Yes	100% Polyester	No	Sheet Fibre + PU	Pass	Pass
100% Cotton	Yes	100% Cotton	No	PU	Pass	Pass
100% Polyester	No	100% Cotton	No	PU	Pass	Fail
100% Cotton	Yes	100% Polyester	No	PU	Pass	Pass

Extremes of compositions were selected here so as to emphasise the distinct possibility that if lining fabrics are excluded from the new test method, a reduction in safety is possible.

Materials near the outer cover

Several materials which may be in common use internally and within 40mm of the outer cover of furniture were tested. Some of the results are given below.

Material Type	Ignition / Non-ignition
Cardboard – compressed, approx 3mm	Non-ignition
Cardboard – compressed, approx 2mm	Non-ignition
Cardboard – corrugated, approx 2mm	Ignition
Paper – approximately 120gsm	Ignition
Card – approximately 200gsm	Ignition
ABS Plastic – approx 2mm thick	Non-ignition
Plywood – 3 ply, approx 3mm thick	Non-ignition
Pine wood – approximately 10mm thick	Non-ignition

Material Type	Ignition / Non-ignition
Chipboard – approximately 10mm thick	Non-ignition
Fibreboard – approximately 5mm thick	Non-ignition
5mm Fibreboard with polymeric coating	Ignition
Lining fabric, 100% Cotton, 160gsm	Ignition

Comparison of results between Schedule 5 Part 1 & the proposed new match Test

For brevity, the following results are summarised in two sections below.

Section 1

Schedule 5 Part 1 Pass ≥ Proposed Match Test Pass

This means that fabrics which pass the Schedule 5 Part 1 match test will usually pass the proposed new match test, but fabrics which meet the proposed new match test may not meet the requirements of the Schedule 5 Part 1 test. Testing of some fabrics has proven this statement.

Cover material type	Schedule 5 Part 1 test	Proposed new match test
100% Polyester (Backcoated)	Pass	Pass
50% Polyester, 50% Cotton	Pass	Pass
100% Cotton	Pass	Pass
100% Acrylic	Pass	Pass
100% Wool (200gsm)	Pass	Pass

Section 2

Full set of measures in relation to materials within 40mm of the visible cover + new proposed match test ≥ Schedule 5 Part 1 pass

This section follows careful selection of materials to identify the most sensitive composites which may be modelled. Issues arose primarily in relation to synthetic materials.

Cover material type	Schedule 5 Part 1 test	Proposed new match test
100% Polyester (Inherently Flame Retardant)	Fail	Pass
50% Polyester, 50% Cotton	Pass	Pass
100% Cotton	Pass	Pass
100% Acrylic	Pass	Pass
100% Wool (180gsm)	Fail	Pass

Cover material type (Thermoplastic)	Material close to cover in composite	Filling material	Proposed new match test
100% Polyester (Backcoated)	Paper (Ignition in test as above)	Loose fill polyester (20Kg/m ³)	Fail
100% Polyester (Backcoated)	None	Loose fill polyester (20Kg/m ³)	Pass
100% Polyester (Inherently Flame Retardant)	Paper	Loose fill polyester (20Kg/m ³)	Fail
100% Polyester (Inherently Flame)	None	Loose fill polyester (20Kg/m ³)	Pass

Cover material type (Thermoplastic)	Material close to cover in composite	Filling material	Proposed new match test
Retardant)			

Unregulated materials within 40mm of the cover: indicative exemptions list

BIS intends to publish a regularly updated list of materials that will be exempted from testing because they have been shown to always pass the test. There are two types of exemption:

- materials which in themselves are exempted;
- materials which are under exempted materials that they do not form a hole when tested, termed 'protective' coverings.

It is intended that the amended FFRs will contain descriptions to the effect:

“The criteria for failure shall be any flaming which continues for more than 10 seconds after the removal of the ignition source and any smouldering which continues for more than 120 seconds. Hole formation in the test sample should be recorded; materials which do not form a hole are classed as 'protective'. 'Hole' means the absence of the material in an area greater than 2mm².”

Below is an indicative list of exemptions, following research testing by Steve Owen.

In the table below, all the materials in the left hand column would be exempted from testing and any materials underneath them which they are protecting would also be exempted from testing.

Material	Class
Ferrous Metals & Alloys - All varieties and thicknesses > 0.5mm	Protective
Non-Ferrous Metal Alloys, Copper & Aluminium – All varieties and thickness > 0.5mm	Protective
Sheet Card – All varieties (but not corrugated) and thickness > 1.0mm	Protective
Fibre Board – All varieties and thickness > 1.0mm	Protective
Chipboard – All varieties and thickness > 1.0mm	Protective
Hard & Soft Wood – All varieties and thickness > 1.0mm	Protective
Plywood – All varieties and thickness > 1.0mm	Protective
Stone – All types and thicknesses	Protective
Plaster	Protective

Further results of Intertek's testing of currently unregulated components:



Unregulated
Components List.xls

Annex 3: Results of FIRA's research into the proposed test changes

BIS is grateful to Phil Reynolds and Tristine Hargreaves of FIRA for the attached test results.



Test Results.xlsx

Annex 4: Additional background detail

The proposed new match test

For the past 18 months, BIS has explored ways in which FR levels in UK furniture might be reduced, without lowering fire safety levels. Steve Owen of Intertek has worked with BIS on alternative test methods which could achieve this goal. In July 2013, BIS circulated for informal consultation a discussion paper on a new match test, detailing five possible options. The paper looked at all the testing requirements for possible avenues for reducing FR use and saving costs, and concluded that the most viable was Schedule 5, Part I.

BIS acknowledged that the paper was necessarily a little complex. Nevertheless, BIS received 11 (mostly detailed) responses from a mixture of retailers/manufacturers, test houses, enforcement officers, trade associations and consultants. All were positive about BIS's intention to reduce FR levels in UK furniture. Eight were supportive of our alternative match test (despite it being in a basic form at that stage). Of the remaining three, two were overall positive with some concerns; one was mostly negative. Of those who expressed a preference, Option 3 (see below) was the most popular and the one BIS also preferred.

Option 3 proposed the substitution of combustion modified foam for non-combustion modified PU foam in the match test filling requirement, and to include currently unregulated lining fabrics and any 'easily ignitable' materials which may sit between the cover fabric and the foam fillings of a product, e.g. cardboard sheeting. This measure clearly will involve some extra testing; however, BIS believes this additional cost is more than offset both by the reduction of testing required under the cigarette test and cost savings made from a reduction in levels of chemicals used to meet the requirements of the new match test. Also, as stated above, BIS/Intertek have subsequently discovered that most materials which pass this extra test can be permanently exempted from testing.

Potential savings from the amendments

The Impact Assessment at Annex 7 sets out BIS's estimates of the potential savings industry may make from the proposed match test. These are based on an estimate (based on figures supplied by manufacturers and treatment processors) that the cost of treating cover fabric with FRs is around £1.30p per metre (but can be higher for some fabrics), dependent on sales volumes, i.e. SMEs ordering smaller amounts of treatment will tend to pay quite a lot more than larger companies. Of this cost, about half represents the cost of chemicals. BIS believes the range of savings on this basis to be between £17m and £50m per year, with £50m per year as the best estimate.

However, the Impact Assessment points out that these figures are uncertain and BIS therefore welcomes more accurate costs details from industry.

Key impacts and future direction of testing

Impact on use of FRs

Industry may need to reassess the amount of FRs required to achieve compliance (See Annex 3 for FIRA's initial findings in this area). In order for any research undertaken in this area to be fully effective, however, a full chemical analysis of any back-coating mixtures added to test fabrics will be essential. This is in light of Trading Standards' experience that the

misapplication of FR treatments to fabrics for the purposes of the FFRs is a not an uncommon problem in the UK.

Some manufacturers will be able to modify fibre compositions to achieve compliance with little or no FRs (e.g. the nursery furniture industry, where the presence of FRs is seen as increasingly undesirable by consumers). BIS also intends to encourage research into new barrier technologies that could reduce FR use even further.

Impact on fire safety

It could be argued that reducing levels of FRs will make fabrics more ignitable. However, it's important to bear in mind that the match test is intended to achieve a relative rather than an absolute level of safety. Also, the range of products covered by the FFRs is broad. For example, with products from which the occupant is unable to free themselves (e.g. Moses baskets, push chairs), non-ignitability is paramount. By contrast, with products that pass the test by virtue of a Schedule 3 interliner, it would seem non-ignitability is not so important.

As stated above, BIS believes the new match test will in fact make products more fire-safe: by removing the risk of covers that pass the test itself but which can be ignitable on the finished product; by removing the 'margin' of sensitivity for some fabrics under the current test which allows for under-treatment with FRs and therefore potentially unsafe covers; and by including currently unregulated materials that appear in products and which can be highly flammable.

Future Direction of Testing

In future, it may be possible to deregulate some filling materials, e.g. if the barrier techniques employed were made more robust. This would offer manufacturers an alternative that could further reduce FR use, by utilising both alternative materials and component design. Additionally, current US research suggests that barrier techniques can significantly increase the time taken for furniture to reach peak heat release rate. This, linked to the growing prevalence of smoke detectors and alarms may form a key element in balancing the non-ignitability of furniture against the fiscal cost of non-lethal fires, and the lethality of fires against the use of FRs. In these cases, it may be possible to allow for the option of a full scale test (in US style) so that FR usage could be significantly reduced and concentrated in areas where it is most effective.

Annex 5: Consultation principles

The principles that Government departments and other public bodies should adopt for engaging stakeholders when developing policy and legislation are set out in the consultation principles:

<http://www.cabinetoffice.gov.uk/sites/default/files/resources/Consultation-Principles.pdf>

Comments or complaints on the conduct of this consultation

If you wish to comment on the conduct of this consultation or make a complaint about the way this consultation has been conducted, please write to:

Angela Rabess
BIS Consultation Co-ordinator,
1 Victoria Street,
London
SW1H 0ET

Telephone Angela on 020 7215 1661
or e-mail her at: angela.rabess@bis.gsi.gov.uk

Annex 6: List of individuals/organisations consulted

Retailers, manufacturers

360	Maclaren
AHF	Made.com
Air Plants Dust Extraction Ltd	Mamas & Papas
AIS	Marks & Spencer
Appraise PTC	Matalan
Argos	Meadowmead
Asda	Mothercare
B&Q	Next
British Velvets	Orangebox
Buoyant Upholstery	Poundstretcher
Debenhams	Quality Furniture Company
DFS	Relyon
Dunelm	Sainsbury's
Furniture Village	SCS
Glencrest Seatex Ltd	Shop Direct
H & C Whitehead Ltd	Sofaworks
Habitat	Steinhoff International
Hobbycraft	Tesco
Home Retail Group	The Range
House of Fraser	The White Company
IKEA	Toys R Us
J D Williams	Waitrose
John Cotton	Welbeck House Ltd
John Lewis	Wilko
Laura Ashley	WorldStores
Leisure Plan	

Trade Associations, accreditation services, consultants, fire rescue services, consumer organisations

The Association of Master Upholsterers and Soft Furnishers (AMUSF)	David Waite
Baby Products Association (BPA)	Derbyshire Trading Standards
Bedfordshire and Luton Fire and Rescue Service	Dorset Fire and Rescue Service
Birmingham University	East Sussex Fire and Rescue Service
Bob Graham	Eric Guillaume
Bolton Consultancy	European Man-Made Fibres Association
Bolton University	Fire and Rescue Statistics Users Group
Brevia	Fire Brigades Union
British Furniture Manufacturers (BFM)	Fire Safety Platform
British Independent Retailers Association (BSSA)	Furniture Industry Research Association (FIRA)
British Plastics Federation	Green Textile Consultants
British Retail Confederation (BRC)	Greenstreet Berman Ltd
British Shops and Stores Association (BSSA)	Legaleyes
British Standards Institute	Leicester Trading Standards
Burson-Marsteller UK	Leisure & Outdoor Furniture Association (LOFA)
Cancer Prevention Society	LGC
Catherine Levin	London Fire Brigade
Cheshire Fire and Rescue Service	National Bed Federation (NBF)
Chief Fire Officers' Association	National Childrenswear Association (NCWA)
Child Accident Prevention Trust (CAPT)	No-Burn Europe
David Hawkridge	Northamptonshire Trading Standards
David King	Prof. A. R. Horrocks
	Royal Society for the Prevention of Accidents (RoSPA)
	Trading Standards Institute (TSI)

UCLAN
UK Fashion & Textile Association (UKFT)
United Kingdom Accreditation Service (UKAS)

United Kingdom Textile Laboratory Forum
(UKTLF)
World Textile Information Network

Test Houses, chemicals companies, treatment processors and others

Bradford Textile Society
Bureau Veritas
Chemtura
Clarkson Textiles
FRETWORK
Greenurethanes
Howorth's Textiles
Intertek

National Composites Centre
SATRA
Solvay
Texchem
Textile Laboratory Services
West Yorkshire Joint Services
Westbridge Fabrics

Other Government Departments/Agencies

Cabinet Office
Defra
Department for Communities and Local
Government
Environment Agency
Food Standards Agency
Foreign Office

Health and Safety Executive
Northern Ireland Executive
Public Health England
Republic of Ireland Government
Scottish Executive
Welsh Assembly

Others

California Department of Consumer Affairs (US)
Consumer Product Safety Commission (US)
Department of Toxic Substances Control (US)
Danish Standards Committee for Furniture

DG Sanco, European Commission
Environment Protection Agency (US)
Green Science Policy Institute (US)
International Dyer

Annex 7: Impact Assessment of proposed amendments to schedule 5 - the match test - part 1 and schedule 4 - the cigarette test - of the furniture and furnishings (fire) (safety) regulations 1988

Title:
Furniture Fire Regulations Amendment

IA No:

Lead department or agency:
Department for Business, Innovation and Skills

Other departments or agencies:

Impact Assessment (IA)

Date:

Stage: Consultation

Source of intervention: Domestic

Type of measure:

Contact for enquiries: Terry Edge

020 7215 5276

Summary: Intervention and Options

RPC Opinion:

Cost of Preferred (or more likely) Option

Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2009 prices)	In scope of One-In, Two-Out?	Measure qualifies as
£160-470m	£160-470m	- £15-43m	Yes	Out

What is the problem under consideration? Why is government intervention necessary?

The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (FFRs) are expected to be substantively updated, by the earliest in 2016. However, government intervention is required now to amend the flammability match test requirement that in practice has led to furniture producers and retailers using large amounts of environment- and health-damaging flame retardant chemicals. The intervention tackles a government failure to amend regulation to technological advances and changes in industry practice; to minimise the cost to business. The new match test reduces the cost of meeting safety requirements to ensure furniture is fire resistant, and has been developed from performance evidence gained by research sponsored by BIS. A further cost saving was identified in light of test house evidence, BIS intends to exclude most furniture cover fabrics from the FFRs' cigarette test, on the grounds that if they pass the match test, they will automatically pass the cigarette test.

What are the policy objectives and the intended effects?

1. To maintain and improve the current high levels of fire safety of UK domestic upholstered furniture, which prevents injury and the loss of life.
2. To reduce the cost to business of meeting the flammability requirements of the FFRs.
3. To reduce the use of flame retardant chemicals, on health and environmental grounds.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 1, 'Do nothing' - This would not meet the 2nd & 3rd policy objectives. Industry will not benefit from technological progress that reduces costs. This is because the current match test does not allow for compliance to be met through the ignition resistance of the overall composite of flame-resistant fillings and cover fabrics (i.e. the ignition resistance currently required of the cover fabric alone is unnaturally high). Therefore, manufacturers will continue to use more flame retardants than is necessary (with the new test). Also, in the course of researching the proposed new test, BIS has discovered that in some cases, fabrics which pass the current match test under test conditions do not always comply in practice, in the finished product. Which means this option is not viable for the 1st objective either. In addition, BIS intends to include currently unregulated materials within 40mm of the cover fabric, thereby making furniture safer, i.e. because some of these materials (such as some forms of webbing) can be highly flammable and negate the benefits of the current match test.

Option 2, [preferred option] 'Introduce a new flammability test now' - Brings early and significant cost reductions to industry and puts the government ahead of growing concern over flame retardants. Costs will be reduced in two ways:

1. The tests have been amended to reflect changes in materials standards, reducing the amount and cost of chemicals currently used in meeting the flammability requirement of the FFRs.
2. By introducing a change to the cigarette test, effectively excluding most fabrics (on the basis if they pass the match test, they will automatically pass the cigarette the test), bringing further savings to industry.

Option 3, 'Implement all Regulatory changes at the same time' - Delay the new flammability test and cigarette test amendments by one year to 2016 so they are implemented at the same time as the rest of the amendments to the FFRs. Transition costs may be reduced compared to option 2 but this would delay the majority of savings, meaning industry would benefit later than for option 2.

Option 4, 'Revoke the Regulations' - This would mean relying on the existing EU safety provisions which have lower fire resistance requirements than the UK's. This would lead to an increase in fire deaths and injuries compared to the 'do nothing' baseline. This option was not taken further and is not costed in this Impact Assessment given the risk to consumer safety, as detailed in the Rationale for Intervention below.

Will the policy be reviewed? Yes. If applicable, set review date: 2020.

Does implementation go beyond minimum EU requirements?			Yes		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro Yes	< 20 Yes	Small Yes	Medium Yes	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded: N/A		Non-traded: N/A

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY: Date:

Summary: Analysis & Evidence - Policy Option 2

Description: Introduce a new flammability test now

FULL ECONOMIC ASSESSMENT

Price Base Year 2014	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)			
			Low: £160m	High: £470m	Best Estimate: £160-470m	
COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Cost (Present Value)	
Low	£0.2m	2	0		0	
High	£0.2m		0		0	
Best Estimate	£0.2m		£0.00		£0.00	
Description and scale of key monetised costs by 'main affected groups'						
£200k familiarisation cost to furniture manufacturers.						
Other key non-monetised costs by 'main affected groups'						
Cost of familiarisation with the legislation to other groups, such as public bodies and other businesses that could be affected. Risks for increased costs or reduced benefits considered below were: increased risk of fires, cost savings not being passed on from test houses to manufacturers and transition costs.						
BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Benefit (Present Value)	
Low	£0.0	0	£19m		£164m	
High	£0.0		£55m		£473m	
Best Estimate	£0.0		£19-55m		£160-470m	
Description and scale of key monetised benefits by 'main affected groups'						
Assuming between 65 and 130 million metres of fabric is treated every year in the UK then cost savings to business, assuming a 20-50% reduction in the cost of flame retardant chemicals, would be in the order of £11.5m to £47.5m a year. This benefit accrues to furniture manufacturers selling to the UK market and derives from a saving on the process of treating fabrics so they can meet the 'match test' requirements of the FFRs. In addition, it is assumed that the cost of testing fabrics to the cigarette test will be reduced by £7.5m giving a total range of £19m to £55m annual savings.						
Other key non-monetised benefits by 'main affected groups'						
The reduction of 20-50% of flame retardant chemical costs in UK furniture could make UK companies more competitive in the EU non-domestic market, since EU FR regulations are less stringent (i.e. while most Member States don't want FR chemicals in their domestic furniture, the higher flammability requirements for their non-domestic furniture mean some FR use is essential). There are also considerable health benefits that may result from this reduction in flame retardant use. Research projects show that brominated FRs accumulate in fauna, and are present in human blood and breast milk. Public concern about this issue in the US has directly affected fire safety policy there, and industry in the UK inform us there is growing public concern here too.						
Industry has also indicated that the cost of chemicals used in treatment may rise in the future, which has not been factored in to the current calculations, for example one large UK furniture producer said they will be paying £2 per metre for treatment by the time the new test is implemented (up from £1.30 per metre now).						
Key assumptions/sensitivities/risks (3.5%)					Discount rate	3.5

Two alternative methodologies were used to derive the range. The consultation looks to improve the current evidence base but given the information available, a range is given to indicate the order of magnitude. The key uncertainty is how to estimate the amount of fabric treated by UK manufacturers of furniture, which using the two methodologies, gives a range of 65 to 130 million metres per annum. Cost savings from treatment also have been estimated to range between 11.5p to 32.5p, enlarging the range further. The cost saving and annual demand for treated fabric are the key sensitivities; a full discussion on the alternative methodologies and a list of all the assumptions is discussed below.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: £0.00	Benefits: £15-43m	Net: - £15-43m	Yes	Out

Summary: Analysis & Evidence - Policy Option 3

Description: Implement all Regulatory changes at the same time

FULL ECONOMIC ASSESSMENT

Price Base Year 2014	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)			
			Low: £140m	High: £420m	Best Estimate: £140-420m	
COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Cost (Present Value)	
Low	£0.2m	2	0		0	
High	£0.2m		0		0	
Best Estimate	£0.2m		£0.00		£0.00	
Description and scale of key monetised costs by 'main affected groups' Initial estimate of £200k familiarisation cost to furniture manufacturers.						
Other key non-monetised costs by 'main affected groups' Cost of familiarisation with the legislation to other groups, such as public bodies and other businesses that could be affected.						
BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Benefit (Present Value)	
Low	£0.0	0	£17m		£145m	
High	£0.0		£50m		£418m	
Best Estimate	£0.0		£17-50m		£140-420m	
Description and scale of key monetised benefits by 'main affected groups' As with option 2 but benefits are delayed by 1 year. The benefit of introducing all amendments to the Furniture Fire Regulations Amendments at the same time, through lower familiarisation costs, is not included. This is because the benefits and costs of future amendments are not considered in this IA, since they are still being considered, therefore familiarisation costs are also not considered.						
Other key non-monetised benefits by 'main affected groups' As with option 2						
Key assumptions/sensitivities/risks (3.5%) As with option 2					Discount rate (%)	3.5

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs:	Benefits: £13-38m	Net: - £13-38m	Yes	Out

Evidence Base

1. Background to the Furniture and Furnishings (Fire) (Safety) Regulations

- 1.1 The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (FFRs) provide flammability performance levels for all UK domestic upholstered furniture, e.g. sofas, chairs, cushions, pillows, mattress fillings, etc. While the FFRs do not stipulate any particular route to compliance, in practice manufacturers mostly choose to use Flame Retardants (FRs) as the most cost-effective solution.
- 1.2 The FFRs are highly successful in preventing injury and loss of life. A BIS-commissioned report in 2009 shows that the current regulations were annually saving around 54 lives, preventing around 800 injuries, over 1,000 fires. These savings to health and property were valued at around £140m per year². Therefore, any changes to the regulation have the primary objective of consumer protection and safety.
- 1.3 Enforcement of the FFRs is the responsibility of Trading Standards, with powers derived from the primary legislation, the Consumer Protection Act 1987. Regular exercises by Trading Standards reveal that a constant threat to UK consumers is from non-compliant furniture imports, because most of the rest of the world provides little flammability protection for upholstered products.

2. What is the problem?

- 2.1 The FFRs have not been updated (aside from minor amendments) since 1988 and stakeholders (e.g. industry, the fire service, Trading Standards), while strongly supportive of the FFRs, have often lobbied for an update. For the past three years, BIS has been working closely with all key stakeholders on a review of the FFRs and the amended regulation could be in place by 2016. Over the past year or so, however, evidence for the ill effects of FRs on health and the environment has been growing, so much so that in the USA, California has made changes to its furniture flammability standard (used across the USA) which will obviate the use of all FRs, which may compromise the safety of consumers (see 5.4). There are signs in the UK (from press and consumers) that consumer concern over the chemical treatment of furniture is growing here too.
- 2.2 The current flammability tests required by the FFRs are: match and cigarette tests for cover fabrics and the 'crib 5' test for filling materials. Some FRs are needed for filling materials; however, these are largely non-contentious. More potentially/actually harmful FRs - particularly the brominated variety (BFRs) - are used to meet the stringent requirements of the match test. These are applied either by impregnating the fabric or by 'backcoating' it. There is growing evidence that a) BFRs are worn away during normal use, getting into house dust and b) damage the environment by releasing toxins and dioxins when burnt or dumped in landfill at end of life (see Annex 1 above for evidence linking chemicals with environmental and health outcomes).
- 2.3 The current FFRs match test (see text box) requires cover fabrics to be tested over highly-flammable (and now illegal in the UK) polyurethane foam fillings. This means the additional flame resistance supplied by the combustion-modified fillings that are present in

² "A statistical report to investigate the effectiveness of the Furniture and Furnishings (Fire) (Safety) Regulations 1988" by Greenstreet Berman Ltd 2009, commissioned by BIS.

the final product is not utilised, leading to a higher than necessary ignition resistance standard in the cover fabrics (and more chemicals used to meet it).

Box 1: The match test

- The current match test under the FFRs requires cover fabric to be tested over highly flammable polyurethane foam. However, this foam would not pass the FFRs filling test, i.e. it is not found in furniture sold in the UK. The EU match test, by contrast, requires cover fabrics to be tested over the same combustion-modified foam that appears in final products, which is the basis of BIS's new proposal. The proposed new match test will be undertaken over representative actual foam fillings. This will reduce the amount of flame retardant chemicals needed to pass the match test; the same safety level previously tested for will be met with less chemicals in cover fabrics.
- The current test serves two purposes: to reduce the ignitability of the cover fabric and to protect the filling material underneath. The current test does not take account of the fact that the combustion-modified foam present in the actual product reduces the ignitability of the cover fabric and is also, by its nature, more protected than the test PU foam.

Box 2: The cigarette test

- We also intend to modify the existing cigarette test, essentially to exclude most fabrics from having to be tested. This is because the cigarette test is less stringent than the match test and many fabrics have never failed the test. The main reason they do not fail the cigarette test is because they must also pass the match test, which is a much more severe test.

3. What solution is proposed?

- 3.1 BIS intends to introduce to the FFRs a new flammability match test (see text box) which, while maintaining current safety levels, will allow manufacturers to reduce FR use by between 30%-50%³. Based on the assumptions detailed below this could lead to an annual un-discounted saving of between £19m and £55m. A best estimate is not currently given due to the uncertainty of the data available. BIS hopes this consultation IA will elicit evidence to improve the robustness of these estimates.
- 3.2 We believe that if we make compliance possible with less FR chemicals, industry will be encouraged to explore other means of achieving flame retardance, e.g. inherently flame-retardant fabric fibres, which require no treatment at all. This is because we are removing the need to test fabrics over highly flammable polyurethane but instead testing the whole product including the foam filling that will be used. The new test should also encourage manufacturers to explore compliance through design. Long-term, for example, BIS intends to encourage and support research into new 'barrier' technology (currently used for mattresses in the USA) which does not require the use of any FR chemicals.

³ Estimate provided by both Intertek, one of the UK's largest test houses, and Clarkson Textiles, the largest chemical treatment company in the EU, verified by further testing undertaken by the Furniture Industry Research Association (see Annex 3 above).

- 3.3 A discussion paper based around the proposed new draft match test and amendment to the cigarette test was circulated to key stakeholders in July 2013, and received very positive support. There were some concerns, which BIS believes were mostly down to the discussion paper being (necessarily) somewhat complex as it needed to provide, with explanation, several options.
- 3.4 Regarding our plans to exclude most fabrics from the cigarette test - this was agreed by a group of prominent test house experts in a workshop meeting with BIS. Essentially, any fabric which passes the match test will automatically pass the cigarette test (because the match test is more severe). When the FFRs were introduced, this was not foreseen, and has become apparent over the years with the results of multiple testings.
- 3.5 The proposed new match test was discussed with various experts over a two-day period at IKEA's research establishment in Almhult, Sweden. IKEA have strong green credentials and took a great interest in BIS's proposal, e.g. because it can allow them to use a greater range of cover fabrics that at present (they do not use BFRs in furniture, thereby restricting the range they can offer in the UK). IKEA were strongly supportive of the veracity of the test requirements, commenting that it was highly competent. They foresee that it could support some of their new technologies, too.

4. Rationale for intervention

- 4.1 Government intervention is necessary to amend a flammability test requirement that in practice has led to furniture producers and retailers using large amounts of flame retardant chemicals to comply with the regulations. The new test reduces the cost of meeting safety requirements to ensure furniture is fire resistant, in light of new performance evidence gained by research sponsored by BIS. BIS believe the fire safety of UK consumers should not be left to existing EU legislation⁴ as that would mean the standard of fire safety in furniture will fall, increasing the risk of loss of life. Quantifying the risk to loss of life is difficult as there are issues with data collection across European comparators but the UK is widely recognised as having an excellent fire safety record for furniture within the EU.
- 4.2 The European Commission has frequently stated its intention to raise the EU standard to UK levels. However, it has recently acknowledged that a stumbling block to acceptance from some Member States is that such high standards tend to require the use of FR chemicals in furniture. The Commission has found it difficult to prove that the chemicals used in furniture (particularly BFRs) are not harmful; indeed, as said above, evidence is growing that in fact they can be damaging to health and the environment. In short, the new test will also help the Commission in that the new match test will considerably reduce FR use. BIS officials visited the Commission to discuss these proposed changes in April 2014. The Commission (DG SANCO) expressed strong enthusiasm of the direction the UK is taking; however, they also made it clear that the increasing concern about FR

⁴ EU furniture flammability falls under the General Product Safety Directive. This requires suppliers to ensure their products are safe. Safety is demonstrated by recommended standards. The recommended standard in this case is EN 1021 Parts 1&2, which provides a match and cigarette test based originally on the FFRs (with slight differences). There is no fillings test. BIS understands, from test houses and standards-makers from other Member States, that most EU furniture at best complies with the cigarette test, which is the weakest of the two.

chemicals in Europe means they are not as willing as before to push for a rise in standards until this issue is addressed.

Note on the effects of FRs on human health and the environment

- 4.3 There is a growing literature that has linked health and environmental harm with flame retardant chemicals (brominated, chlorinated and phosphate) used in furniture⁵. Furniture flame retardants are associated with endocrine disruption, immunotoxicity, cancer, and/or reproductive and neurological impairments, lowered IQ, and hyperactivity. Flame retardants migrate out of furniture, settle in dust, and are ingested by humans and animals. Young children have the highest blood levels due to hand-to-mouth behaviour. In the USA, a majority of residential fire deaths result from inhalation of toxic gases, and soot and smoke can obscure escape. One study indicates that US fire fighters have high rates of types of cancers associated with dioxin exposure; the dioxins produced when flame retardants burn are believed to contribute.
- 4.4 California also followed an open flame furniture flammability standard (like the UK's match test). This standard, called Technical Bulletin 117 (TB117), led to the use of flame retardant chemicals in furniture foam across the United States. On 1 January 2014, California implemented a revised furniture flammability standard called TB117-2013. This could lead to US furniture not containing FR chemicals in future. It is anticipated that the new standard will increase fire safety. However, in BIS's view the original standard offered less fire safety than the UK regulation and the amendments are unlikely to reach the UK's high standards. Nevertheless, BIS acknowledges that there was strong public support in the USA for a fire standard that would effectively remove FRs from furniture.

5. Risks associated with option 2

- 5.1 SMEs may need more help/guidance initially, since the new test is more complex in some respects. BIS will draft guidance, in conjunction with Intertek, and place it on BIS's website. The formal consultation paper will also contain clear guidance as to what will be necessary to meet compliance. We will also work with the appropriate trade associations. In addition, UK test houses will be an available and accessible source of guidance given that SMEs regularly use their services.

Fire safety

- 5.2 Some stakeholders may assume the new match test will lower safety levels because it requires less FRs to meet compliance. However, there will be no lowering of safety standards. At a meeting BIS held in December 2013, all stakeholders present agreed that the new test will not lower safety in any way (attendees included: FIRA - the Fire Industry Research Association, the British Furniture Confederation, the Baby Products Association, Intertek (test house), and retailers such as Parker Knoll). Intertek has also undertaken test research on representative composites under the new test and concludes that it is as safe as the current test. After a number of workshops and visits made by BIS and Intertek during the first half of 2014, there is widespread acceptance that the new test will actually make furniture safer from fire (see main consultation document for details). At a workshop on 16th June 2014, including furniture manufacturers/retailers, flame retardant manufactures, trading standards and others, FIRA announced that its research into the

⁵ See Annex 1 above for links to sample papers.

proposed test confirmed BIS's claims on the potential reductions in FR levels, as well as that it should provide more fire safety than the current test.

- 5.3 One of the reasons the new test provides slightly more safety, because it now includes previously unregulated parts of furniture, e.g. the arms. Test houses inform us that in recent years, cheap and highly flammable materials have sometimes appeared in these unregulated parts, making the overall product more flammable than was envisaged at the introduction of the FFRs. Another reason is that in the course of researching the new test it has become apparent that the current test does not always produce fire-resistant final products, i.e. some polyester fabrics (now very common in furniture) will pass the test in test conditions but when placed in the final product, construction factors mean they will often fail to be non-ignitable to the same level. The new test caters for these extra, unforeseen, factors.
- 5.4 There will be a small amount of extra testing required for some products (although it should be noted that only a sample of a batch needs testing, not each product). However, the extra cost of this is negligible compared with the savings to be made from reduced FRs. It is also more than off-set by savings that will be made from reductions in cigarette testing (i.e. only some fabrics requiring extra match tests compared to most fabrics not needing the cigarette test). In addition, BIS has informed industry that costs can be reduced further by the establishment of exemption lists for materials which pass the modified test for additional materials.

Complicated regulatory transition

- 5.5 At the meeting in December mentioned above, FIRA said its members would prefer all the FFRs amendments to be made at the same time; that this proposal will mean they're required to respond to two consultation exercises. We agreed that this would be simpler but explained that the main amendments can not be implemented before 2016 anyway; yet it is possible within that time scale to bring forward the relatively simpler match/cigarette test changes and thereby provide savings to industry a year earlier. Also, while we accept there will be two consultations, the material for each is separate and will require no more consideration time-wise than if they were made together.

Cost savings of the flame retardant treatment is not passed on to furniture producers and ultimately the consumers

- 5.6 This risk is minimal as furniture manufacturers are well aware of the breakdown of treatment costs, i.e. that half the cost covers the processing while half covers the chemicals, and will therefore be able to negotiate effectively with treatment companies. Some larger manufacturers have their own treatment facilities so will directly benefit from the savings. Larger companies will also be aware that the change in the match test/BIS's thinking, can lead to the development of technologies that will reduce FR use further, possibly cut it out altogether (e.g. the USA has a mattress flammability test that is as tough as the UK's but is met via 'barrier' technology, with no FR treatment required. Research is currently being undertaken on developing similar technology for sofas, too).

6. Costs and benefits for Option 2

Economic Context

- 6.1 Upholstered furniture manufacturers provide approximately £1.3 bn to Gross Value Added, employing 51,000 people in 4,000 enterprises in 2012.⁶ Turnover was £3.2 bn with £1.9 bn of purchases in the wider supply chain. Using another data source, at a lower level of granularity, sales for products affected by the regulation are estimated at £3.2-1.5 bn.⁷ Figures are presented in a range because even at a lower level of granularity the categories are still residual, so the inclusion and exclusion is based on a judgement of those categories.

Costs

Costs in lost earnings to test houses

- 6.2 It is assumed that the total cost of testing will be reduced as there is no longer a requirement to conduct the cigarette test for most fabrics. This brings estimated saving of £7.5m per annum⁸ compared to the current requirements.
- 6.3 The reduced cost to furniture manufacturers selling in the UK market is a loss in earnings to test houses. This revenue is a regulatory cost and therefore not considered to be a loss in economic benefit to the UK. This is because the labour previously allocated to testing can be re-allocated to more economically productive activity.

Q1*: Is the assumption on the cost of testing above right in your view? Could you provide evidence supporting your arguments? **Please note: all questions in this impact assessment are repeated in Annex 9 below. We would be grateful if you made your responses in the Annex, not here.**

Cost in lost earnings to chemicals manufacturers

- 6.4 We understand that all chemicals used in the manufacture of UK furniture are produced by non-UK companies, mainly in China and the Dead Sea area.

Familiarisation costs

- 6.5 There will be a cost to business in familiarising themselves with the new legislation. To calculate these costs it was assumed it would take 2 hours of a retail or wholesale manager's time⁹. There are assumed to be 6,145 businesses affected¹⁰, giving a total

⁶ ONS Annual Business Survey, November 2013 release. Manufacturers of mattresses and manufacturers of other furniture were assumed to comprise the upholstered furniture sector, SIC codes 31.03 and 31.09.

⁷ BIS analysis of Prodcum data.

⁸ Cost savings provided by UK test houses.

⁹ Hourly salary assumed to be £13. 2012 ASHE data - Managers and directors in retail and wholesale, this was up-rated by 17.8% to account for non-wage costs.

cost of approximately £160,000 for companies to familiarise themselves with the updates to the furniture regulations. The number of businesses includes those who are not required to test their furniture to the domestic regulations, such as office and shop furniture manufacturers. However, we assume that these businesses are likely to also have to familiarise themselves with the legislation, so are included¹¹. Please indicate if there are any other types of business or organisation you think will need to familiarise themselves with the new regulations.

Q2: Do you have any evidence that could help to refine this cost estimates?

Q3: Are there any other costs not included here that should be included? Please provide evidence supporting your arguments.

Lead-in times and cost of scrapping old inventory

6.6 A suitable lead-in time will be provided by the new test amendment to minimise cost to business. BIS assumes this would be around 18 months. The amendment will include a provision for outstanding stock compliant with the current test for furniture manufactured prior to the amendment coming into force. It is assumed, therefore, that there will not be any significant losses of furniture inventory stock or additional testing costs given the length of the transition period. However, any feed-back from industry to the contrary, based on working practice, will be considered. Again, information on this is welcome.

Q4: Do you agree with the assumption that there will be minimal losses of stock given the transition period? What is your normal turnover of stock?

¹⁰ Taken from FIRA (2012) 'Statistics Digest for the UK furniture Industry' table at page 20

¹¹ The requirements for non-domestic furniture - The Regulatory Reform (Fire Safety) Order 2005 - proposes similar flammability requirements for upholstered furniture to the FFRs (sometimes the same as). We have not quantified it for the purposes of this report but there may well be savings for non-domestic suppliers to be made from the new match test.

Benefits

- 6.7 There are two monetised economic benefits of the change in regulation:
- reduced cost of fabric testing,
 - reduced cost of fabric treatment due to a reduction in chemicals needed.
- 6.8 The first is the reduced cost of testing in order to meet regulations; the second is a reduced cost for UK based upholstered furniture manufacturers in meeting the flammability requirement of the FFRs. The total monetised savings are estimated to be within the range £19m to £55m per annum. These figures are uncertain and it is hoped that this consultation will help BIS improve the robustness and evidence base of the estimates.
- 6.9 This section proceeds by firstly discussing the monetised cost savings, the benefits, of the new regulations and then turns to the non-monetised benefits. The analysis in this Impact Assessment represents current evidence but is also a call for evidence as part of this consultation. Any data and evidence you can provide to improve the evidence base for this analysis would be greatly appreciated in order to strengthen the robustness of the final Impact Assessment.

Reduced cost of fabric testing

- 6.10 The cost savings UK based companies will make on fabric testing was estimated above in the costs section. The cost savings were estimated by a test house to be approximately £7.5m per annum.¹² The cost savings are due to companies no longer being required to conduct the cigarette test for a large number of products. This is shown again in the table below:

Table 1. Difference in testing requirements and costs between old and new regulation

	Old Requirements	New requirements (options 2&3)
Testing required on fabric	Cigarette Test Match Test	Match Test only for a large number of products (see consultation)
Cost	Unknown	Estimated saving of £7.5m per annum ¹³ compared to the old requirements

¹² Cost savings provided by UK test houses

¹³ Ibid.

Q5: Do you agree with the assumption on annual cost savings to UK based companies testing of fabrics for the cigarette test? Could you provide information on the cost of the cigarette testing for your company?

Reduced cost of treating fabric

6.10 To calculate these cost savings, BIS needs to estimate:

- 1) the cost savings in treating fabrics, and
- 2) the amount of fabric treated by UK manufacturers

This section begins with the first estimation and concludes with the second, which is more uncertain.

1) The cost savings of treating fabrics

6.11 To meet current fire tests, a lot of fabrics for upholstered furniture sold in the UK are treated by chemical processors. The cost of treatment is estimated by industry to be in the range of £1.15 -1.30 / metre, at the low end. BIS has been informed by the largest chemical processor¹⁴ that half this cost comprises FR chemicals and the other half the treatment process. They also estimate that the new test should reduce the need for FRs by between 20-50%. There is anecdotal evidence that these costs may underestimate the cost of treatment to SMEs. We have also not taken into account that future costs may rise, according to one large furniture manufacturer, with the cost of treatment estimated to increase to £2 per metre by the time the new test is implemented. Our current assumptions are summarised in the table below:

Table 2. Cost savings range for treating fabrics used in furniture sold in the UK

Assumption	LOW <i>Source: FIRA</i>	HIGH <i>Source: BIS estimates from discussions with test houses and industry</i>
Cost of fabric treatment (per metre)	£1.15	£1.30
Cost savings from new test	10%	25%
Range of cost savings per metre	£0.115	£0.325

Q6: Do you agree with the range of cost savings above? What are the cost savings most likely to be for your company?

¹⁴ Clarkson Textiles Ltd

2) Annual Demand for treating fabrics used in furniture sold in the UK

6.12 There are a number of methodologies that can be employed to estimate the total amount of fabric treated by UK manufacturers. Due to the uncertainties, however, all methodologies are presented, even those where BIS currently have no data. Any evidence to help the analysis would be greatly appreciated from stakeholders. The different methodologies are represented in the table below:

Table 3. Methodology table for calculating annual demand for fabric treatment

Methodology	Calculations Detail	Current Robustness?	Estimated here?
(1) Sales data (top down)	Sales	LOW - Sales categories from Prodcom or ONS are in residual product categories, therefore estimating the average cost per unit and m2 of fabric used in a residual category is likely to be inaccurate given the diversity of products included.	FIRA
	/Average cost of unit sold		
	x average metres of fabric used		
	= metres of treated fabric		
(2) Household demand (bottom up)	metres of treated fabric in average household	LOW/MED – The major uncertainties are on the amount of treated fabric in the average UK home and the average replacement rate. Therefore, likely to generate a large range.	BIS
	x no. of households		
	/ average annual replacement rate		
	x UK manuf. share of domestic market		
	= metres of treated fabric		
(3) Company cost estimates up-rated	Cost of treating fabric	MED/HIGH – Company data on treatment costs is the most direct way to estimate cost savings. Robustness will improve with an increase in the market share covered by company provided data	
	/ market share		
	= total cost of treating fabric		
(4) Company volume of fabric estimates up-rated	Volume of fabric treated	MED/HIGH - Company data on the volumes of treated fabric is a direct way to estimate the annual amount of treated fabric in the UK. Robustness will improve with an increase in the market share covered by	
	/ market share		
	= metres of treated fabric		

		company provided data	
(5) Company sales volumes up-rated	Volume of sales in a product group e.g. sofas	MED – Same as above but less likely to get good coverage of market share	
	x average fabric needed		
	/ market share		
	= total cost of treating fabric		

Q7: Are there any other methodologies you think would be more appropriate?

Methodology 1 – Sales data (top down)

6.13 Firstly, sales data needs to be estimated for those product groups affected. Estimates on the sales of the product groups that use treated fabric are listed below:

Table 4. UK Manufacturers Furniture Sales

	Category	Includes	Sales	Volume
ONS	Manufacture of furniture: other furniture and mattresses ¹⁵	Sofas, mattresses, sofa beds	£3.2 bn	N/A
Prodcom ¹⁶	Manufacture of other furniture and mattresses except plastic garden seats and non-domestic	Sofas, mattresses, note: may include non-upholstered	£3.16 bn	4 million units
Prodcom ¹⁷	Manufacture of furniture in the 'upholstered' category only and	Upholstered seating only and mattresses	£1.5 bn	

¹⁵ONS Annual Business Survey, November 2013 release. Manufacturers of mattresses and manufacturers of other furniture were assumed to comprise the upholstered furniture sector, SIC codes 31.03 and 31.09

¹⁶ <http://epp.eurostat.ec.europa.eu/portal/page/portal/prodcom/introduction>

¹⁷ Ibid

	mattresses			
Prodcom (FIRA choice of product categories)	Manufacture of furniture in the 'upholstered' category only	Upholstered seating only	£0.96 bn	

6.14 As can be seen above, there are several product groups that are not captured in any of the sales data:

- baby and nursery furniture
- furniture used in caravans
- garden upholstered furniture

6.15 This sales data is then used with estimates of average cost per item of upholstered furniture (£175) and average metres of treated fabric needed per unit (12 metres) both of which are provided by FIRA, an industry research organisation. These estimates were based on a smaller subsection of furniture sales FIRA believed will be affected compared to BIS estimates. Therefore, this estimate can be considered a lower bound, although as noted in the methodology table below, we do not believe these figures are robust given the difficulty in calculating averages for a diverse category. The calculation of this lower bound of metres of treated fabric annually is shown below and then the cost savings range is applied to give an estimate of treatment cost savings. Finally, an estimate of cost savings from BPA, Baby Products Association, is added to both estimates since this gives an estimate of one of the product categories excluded in the sales data.

Table 5. FIRA's estimate of annual demand for treating fabrics

	Unit	Value
Sales	£	956,318,000
Average cost per item	£	175
No. of items	No.	5,464,674.29
Metres per item	metre	12
Metres of treated fabric	metre	65,576,091.43

Table 6. Cost savings assuming FIRA’s estimates for the annual demand for treating fabric

	LOW	HIGH
Metres squared (m2) of fabric treated by UK furniture manufacturers	65 million	65 million
Cost savings from upholstered furniture	£7.5m	£21.3m
Total cost savings including nursery products ¹⁸	£13.5m	£27.3m

6.16 The additional cost savings are from nursery products, which will not be included in the PRODCOM sales data used to calculate the upholstered furniture cost savings. The £6m of cost savings was estimated by the Baby Products Association (BPA) based on a survey of their members. The uncertainty driving the range is on the cost savings in reducing the amount of chemicals for treated fabrics, which gives a total cost saving to business of between £13.5m and £27.3m. This figure doesn’t include estimates on the cost savings for upholstered garden furniture and furniture used in static homes and caravans, however these sales are presumed to be of a lower magnitude but again suggest an underestimation in cost savings to all businesses affected.

Q8: Do you agree with the cost estimates above? Could you provide alternative estimates? Could you provide estimates of cost savings for upholstered garden furniture and/or caravan upholstered furniture?

Methodology 2 – Household demand (bottom up)

6.17 The calculations below shows that demand for treating fabric was estimated by calculating consumer demand for furniture, rather than through sales, as above. As highlighted in the table above, this methodology is likely to contain some uncertainties. This is because no survey data is available that calculates the average amount of treated fabric in households. This is the major uncertainty in estimating demand, therefore a range is used. In the high estimates it is assumed each household has one sofa, two upholstered chairs and 5m of other upholstered goods, such as floor cushions, pouffes and dining chairs.¹⁹ The low estimate assumes each household has one sofa only, which is assumed to contain only 12m of fabric and 5m of other upholstered goods. As discussed above (6.14), we have not included estimates for other FFRs products such as garden furniture, furniture for mobile homes, baby products (prams, buggies, strollers, car seats) and nursery furniture, which may raise the final estimates. Additionally, many

¹⁸ £6m annual cost savings estimated by the Baby Products Association (BPA) based on a survey of their members.

¹⁹ One sofa and two chairs was estimated to use 40m2 of treated fabric following discussions with manufacturers

households will have more than one sofa, and a sofa can contain around 15-20 metres of fabric. The other sensitivity towards calculating total costs is the cost savings for fabric treatment (above). The assumptions, together with their sources, are shown in the table below:

Table 7. Annual domestic Demand for treated fabric: Bottom up methodology

	HIGH	LOW	SOURCE
Number of Households in the UK	26.4m	26.4m	ONS (2012) ²⁰
UK manufacturers' share of domestic furniture sales	54%	54%	PRODCOM data, BIS calculations
Furniture replaced every 5 years	5	5	Furniture Industry Research Association (FIRA)
Treated metres per household range	45	17	BIS estimates from Industry discussions
Total demand for fabric treated (metres)	128 million	48 million	
Cost savings per metre (£)	0.325	0.115	FIRA and BIS, see above

²⁰ Available at: <http://www.ons.gov.uk/ons/rel/family-demography/families-and-households/2012/stb-families-households.html>

Q9: Do you agree with the assumptions above towards calculating the total annual amount of treated fabric? Please provide evidence supporting your arguments.

6.18 There are two ranges of values which are multiplied together, therefore a large range depending on the high or low value used. Added to these ranges are the cost savings from nursery products, which are assumed to be £6m per annum.²¹ This produces a range of cost savings between £47.5m and £11.5m, which is a larger range than methodology 1 above. The cost ranges with the sensitivities are shown in the table below:

Table 8. Estimates of cost savings using estimates of household consumption of furniture

		Furniture fabric per household	
		HIGH	LOW
Cost savings per m2	HIGH	£47.5m	£21.7m
	LOW	£20.7m	£11.5m

²¹ £6m annual cost savings estimated by the Baby Products Association based on a survey of their members

Methodology 3 to 5 – up rating company data

6.19 Unfortunately, we do not have available data from companies to fully utilise these methodologies. BIS therefore asks furniture manufacturers, suppliers, importers and retailers to complete the form below. This will help strengthen the evidence base for this regulation and feedback into the design of the policy. Please note, if it is not possible to complete the whole form then even partial estimates will be useful, as there are a number of ways we can use the data (shown in the methodology table above).

Question	Response
Name of Company	
Manufacturer, supplier, importer, retailer other?	
Estimate of money spent annually on testing products to the FFRs	
Estimate of money spent annually on treating fabrics for the FFRs	
Estimate of amount of fabric (in metres) treated annually	
Number of furniture units sold that are required to meet a) the match test of the FFRs, b) other FFRs' tests	e.g. 10,000 sofas, 50,000 upholstered chairs
Average amount of treated fabric used for the furniture products in scope of the FFRs	e.g. 20 metres per sofa
Market share	e.g. 20% of furniture retail or 15% of sofa sales

Summary

6.20 The second methodology, summarised in table 7, gives the greatest range. Given the uncertainties identified this range is used and the additional £7.5m of test house savings added to give a range of annual £19m to £55m annual cost savings to UK based furniture manufacturing businesses.

6.21 The net cost savings to business, as shown above, for option 2 are counted as an “out” in this appraisal. The Equivalent Annual Net Cost to Business of this “out”, in 2009 prices, over the 10 year appraisal period is between £15m and £43m. The range reflects the uncertainty from the current evidence base.

Unquantified potential benefits

6.20 The assessment above has assumed that cost savings will be captured by businesses. However, there could be a second order effect if businesses choose to reduce prices. If price elasticity is high then this could increase consumer demand for UK produced furniture in the UK / worldwide.

However, it is assumed that the cost reduction on individual products will be too small to affect demand in any significant way even if all cost savings were passed on to the consumer.

Environmental benefits: reduced landfill

- 6.21 At present, old upholstered furniture ends up in land-fill. Some of the FR chemicals present therein leach out into the environment and, according to Food Standards Agency research, get into the food chain (see Annex 1 for sources). One of the most common FRs used in furniture - DecaBDE - is already classed as a Substance of Very High Concern under REACH²², and is likely soon to be made a Persistent Organic Pollutant (POP). DecaBDE as a compound is not a problem but it can cause harm to the environment/health when it breaks down into its constituent parts. Defra report that there are significant problems with the destruction of FR-containing products at end-life, e.g. with building waste. BIS, therefore, wishes to alleviate this problem ahead of time by introducing an FR-reducing flammability test (as well as investigating new 'barrier' technology that could eventually lead to a total absence of FRs in furniture).

Health benefits from reduced use of FRs

- 6.22 Various researches have shown that brominated flame retardants are present in house dust, from various consumer products such as furniture (see Annex for sources). Traces of BFRs have been found in human blood, particularly children, and in pets, i.e. because these tend to be in closer proximity to house dust (see 5.3 and 5.4 above). Other research shows long-term effects in rats from inducing BFRs at the post-natal stage, e.g. loss of attention and mood swings (see Annex for sources).

<p>Q10: Are there any other unquantified costs or benefits? If possible, please provide evidence supporting your arguments.</p>

7. Micro/SME Business Assessment

- 7.1 There are 3,550 SME furniture manufacturers in the UK, comprising roughly 60% of all manufacturers.²³ Micro/SME businesses are not exempted from the requirements of the FFRs because they must produce furniture that is as safe for the consumer as that produced by larger companies.

²² Registration, Evaluation, Authorisation and restriction of Chemicals - European regulation that came into force in 2007.

²³ FIRA (2012): 'Statistics Digest for the UK furniture Industry' table at page 20.

- 7.2 Due to economies of scale, SMEs can pay three times more than larger companies for FR treatment of their fabrics. We can't say that this means their savings will be 3 times higher, i.e. because the saving is in the cost of chemicals not the treatment process. However, it seems reasonable to assume that SMEs will save proportionately at least as much as larger businesses.
- 7.3 In addition, because SMEs pay more for treatment, purchasing more expensive inherently-FR fibres may be more commercially attractive for them than for larger companies. If they go this route, then no treatment would be necessary; therefore, savings will be higher.

Q11: Is this a fair reflection of how smaller businesses will be affected? Please provide evidence supporting your arguments.

8. Costs and benefits for Option 3

- 8.1 The analysis assumes the same cost savings as option 2 but delayed by a year. This reflects the staggered nature of the regulations in option 2 compared to option 3. It is likely the familiarisation costs would be less with option 3, since it would be timed with further amendments to the furniture and fire regulations. However, these future amendments will need a separate impact assessment as they will be a further marginal change. Therefore, to avoid double-counting the cost to business of familiarisation with future amendments, it is not considered here. The differences in the timing of cost savings, resulting from reduced treatment and testing costs, are shown in the table below:

Table 9. Cost savings for option 2

£m	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Low		19	19	19	19	19	19	19	19	19	19
High		55	55	55	55	55	55	55	55	55	55

Table 10. Cost savings for option 3

£m	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
----	------	------	------	------	------	------	------	------	------	------	------

Low	19	19	19	19	19	19	19	19	19
High	55	55	55	55	55	55	55	55	55

Q12: Are the familiarisation cost savings, in time, between options 2 and 4 an accurate reflection of the difference? Please provide evidence supporting your arguments.

Q13: Do the cost saving time profiles accurately reflect the timings of cost savings your business expect to see?

8.2 The net cost savings to business, as shown above, for option 3 are counted as an “out” in this appraisal. The Equivalent Annual Net Cost to Business of this “out”, in 2009 prices, over the 10 year appraisal period is between £13m and £38m. The range reflects the uncertainty from the current evidence base. The cost savings are less than option 2 because cost savings have been delayed a year as shown in the tables above.

Annex 8: Proposed amendments to schedule 5 - the match test - part 1 and schedule 4 - the cigarette test - of the furniture and furnishings (fire) (safety) regulations 1988 - response form

The Department may, in accordance with the Code of Practice on Access to Government Information, make available, on public request, individual responses.

The closing date for this consultation is 7th October 2014.

Please provide answers to any of the questions below, and provide any additional response you believe is appropriate, headed:

Your name:

Organisation (if applicable):

Address:

Please return completed forms to:

Terry Edge

4th Floor, Orchard 1

BIS

1 Victoria Street

London SW1 0ET

Telephone: 020 7215 5576

email: terry.edge@bis.gsi.gov.uk

Please tick boxes below which best describe you or your organisation.

	Organisation type
<input type="checkbox"/>	Business representative organisation/trade body
<input type="checkbox"/>	Central government
<input type="checkbox"/>	Charity or social enterprise
<input type="checkbox"/>	Individual
<input type="checkbox"/>	Large business (over 250 staff)
<input type="checkbox"/>	Legal representative
<input type="checkbox"/>	Local Government
<input type="checkbox"/>	Medium business (50 to 250 staff)
<input type="checkbox"/>	Micro business (up to 9 staff)

	Organisation type
	Small business (10 to 49 staff)
	Trade union or staff association
	Other (please describe):

Please note: in addition to the consultation questions below, we would be very grateful if you could also answer the questions from the Impact Assessment which follow them.

Consultation questions:

Question 1: Do you think this proposal will achieve its aims of: helping to make UK furniture greener, save money to industry and making UK furniture more fire safe?

Comments:

Questions 2: Do you think that paragraphs 19-22 accurately set out the need for a change to the current match test?

A Yes No Not sure

Comments:

Question 3: Do you think the proposed changes are viable (paragraphs 23-29)?

A Yes No Not sure

Comments:

Question 4: What are your views on the inclusion of currently unregulated materials (paragraphs 27-29)?

Comments:

Question 5: Do you agree with the benefits BIS believes the changes will bring?

A Yes No Not sure

Comments:

Question 6: What is your view on BIS's reasons for bringing forward the changes (paragraphs 41-42)?

Comments:

Question 7: General rating of the proposals.

On a scale of 1 to 5, 5 being the highest, grade your overall approval of the proposals

	5	4	3	2	1
Right problems identified					
Range of options wide enough					
Preferred options well chosen					

Question 8: Do you have any other comments that might aid the consultation process as a whole?

Comments:

Below are the additional questions from the Impact Assessment. Please respond to them on this part of the form.

Q1: Is the assumption on the cost of testing above right in your view? Could you provide evidence supporting your arguments?

Q2: Do you have any evidence that could help to refine this cost estimates?

Q3: Are there any other costs not included here that should be included? Please provide evidence supporting your arguments.

Q4: Do you agree with the assumption that there will be minimal losses of stock given the transition period? What is your normal turnover of stock?

Q5: Do you agree with the assumption on annual cost savings to UK based companies testing of fabrics for the cigarette test? Could you provide information on the cost of the cigarette testing for your company?

Q6: Do you agree with the range of cost savings above? What are the cost savings most likely to be for your company?

Q7: Are there any other methodologies you think would be more appropriate?

Q8: Do you agree with the cost estimates above? Could you provide alternative estimates?
Could you provide estimates of cost savings for upholstered garden furniture and/or caravan upholstered furniture?

Q9: Do you agree with the assumptions above towards calculating the total annual amount of treated fabric? Please provide evidence supporting your arguments.

Q10: Are there any other unquantified costs or benefits? If possible, please provide evidence supporting your arguments.

Q11: Is this a fair reflection of how smaller businesses will be affected? Please provide evidence supporting your arguments.

Q12: Are the familiarisation cost savings, in time, between options 2 and 4 an accurate reflection of the difference? Please provide evidence supporting your arguments.

Q13: **Q13:** Do the cost saving time profiles accurately reflect the timings of cost savings your business expect to see?

Thank you for your views on this consultation. Thank you for taking the time to let us have your views. We do not intend to acknowledge receipt of individual responses unless you tick the box below.

Please acknowledge this reply

At BIS we carry out our research on many different topics and consultations. As your views are valuable to us, would it be okay if we were to contact you again from time to time either for research or to send through consultation documents?

Yes

No

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