



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

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RPC Opinion:

Summary: Intervention and Options

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 year¹. 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

¹ "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%². 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.

² 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 legislation³ 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

³ 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 furniture⁴. 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

⁴ 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 2012.⁵ 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.⁶ 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 annum⁷ 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 time⁸. There are assumed to be 6,145 businesses affected⁹, giving a total cost

⁵ 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.

⁶ BIS analysis of Prodcum data.

⁷ Cost savings provided by UK test houses.

⁸ 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.

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 included¹⁰. 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?

⁹ Taken from FIRA (2012) 'Statistics Digest for the UK furniture Industry' table at page 20

¹⁰ 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.¹¹ 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 ¹² compared to the old requirements

¹¹ Cost savings provided by UK test houses

¹² 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 processor¹³ 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?

¹³ 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 ¹⁴	Sofas, mattresses, sofa beds	£3.2 bn	N/A
Prodcom ¹⁵	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 ¹⁶	Manufacture of furniture in the 'upholstered' category only and	Upholstered seating only and mattresses	£1.5 bn	

¹⁴ONS 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

¹⁵ <http://epp.eurostat.ec.europa.eu/portal/page/portal/prodcom/introduction>

¹⁶ 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 ¹⁷	£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.¹⁸ 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

¹⁷ £6m annual cost savings estimated by the Baby Products Association (BPA) based on a survey of their members.

¹⁸ 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) ¹⁹
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

¹⁹ 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.²⁰ 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

²⁰ £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 REACH²¹, 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>
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7. Micro/SME Business Assessment

- 7.1 There are 3,550 SME furniture manufacturers in the UK, comprising roughly 60% of all manufacturers.²² 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.

²¹ Registration, Evaluation, Authorisation and restriction of Chemicals - European regulation that came into force in 2007.

²² 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
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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.

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