2016-046 Flexible Foam Research.

Department for
Business, Energy
& Industrial Strategy

Consultation on updating the Furniture and Furnishings (Fire) (Safety) Regulations (FFRs) response form

The consultation is available at: www.gov.uk/government/consultations/furniture-and-furnishing-fire-safety-regulations-proposed-changes-2016

The closing date for responses is **11 November 2016**.

The form can be submitted by email to: furniture.consultation2016@bis.gsi.gov.uk or submitted by letter to:

[redacted]
Regulatory Delivery
Department for Business, Energy and Industrial Strategy
Second Floor
1 Victoria Street
London
SW1H 0ET

Please be aware that we intend to publish all responses to this consultation.

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. Please see the section on confidentiality and data protection on page 7 of the consultation for further information.

If you want information, including personal data, that you provide to be treated in confidence, please explain to us what information you would like to be treated as confidential and why you regard the information 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.

I want my response to be treated as confidential ☐

Comments

Questions

Name: [redacted]
Organisation (if applicable): Flexible Foam Research Ltd
Address: 6 Bath Place, Rivington Street, London EC2A 3JE

: Pre-amble Who are we?
Flexible Foam Research Ltd is a research company affiliated to British Plastics Federation. We represent 100% of the UK manufacturers of flexible polyurethane foam block. in areas such as technical standards and regulatory matters. Over the last 30 years we have accrued substantial experience in the burning behaviour of full items of furniture

	Respondent type
x	Business representative organisation/trade body
☐	Central government
☐	Charity or social enterprise
☐	Individual
☐	Test House
☐	Manufacturer
☐	Retailer
☐	Large business (over 250 staff)
☐	Legal representative
☐	Local government
☐	Medium business (50 to 250 staff)
☐	Micro business (up to 9 staff)
☐	Small business (10 to 49 staff)
☐	Trade union or staff association
☐	Other (please describe)

Questions on scope

Q1 Do you agree with the revised definition of the Regulation's scope?

☐ **Yes**

Comments: Click here to enter text.

Q2 Do you agree with the proposals relating to sleeping bags and mattress protectors (i.e. those which can be put in a washing machine are explicitly removed from scope and do not have to meet the requirements of the regulations)?

☐ **Yes**

Comments: Click here to enter text

Q3 Do you agree with the proposals relating to cushions and seat pads (i.e. that they remain excluded from cover tests but the definition of these products to be specified more clearly)?

☐ **Yes**

Comments: Click here to enter text

Q4 Do you agree with the proposals relating to outdoor furniture (i.e. that outdoor furniture unsuitable for use inside the home, and clearly labelled as not complying with the Regulations) should be out of scope?

☐ **Yes**

Comments: Click here to enter text

Q5 Do you agree with the proposals relating to baby products (i.e. that items covered by covered by BS EN1888 (wheeled child conveyances) and BS EN1466 (carry cots and stands) are removed from scope, with padded playpens treated in the same way as mattresses)?

☐ **Yes**

Comments: It is unclear, however, as to whether you would be encouraging relaxation of all controls on filling materials in the variously exempted articles (or merely removing cover requirements). We are also supportive of complete exemption of all children's car seats.

Q6 Do you agree with the proposed treatment of second-hand products (i.e. that they would be required to bear the relevant permanent label)?

☐ **Yes**

Comments: Click here to enter text.

Questions on testing

Q7 Do you agree to removing the Filling 1 option?

☐ **No**

Comments:

i) As previously stated we strongly recommend retention of the existing match test – no good evidence has been provided for changes and in previous consultation the case for BIS proposals was substantially destroyed.

ii) Concerning Filling 1, the latest proposal contains no explicit fabric test methodology for those items of furniture that contain no polyester fibre layers. (It seems to be assumed that such items do not exist and/or filling 2 will give the "right result" but detailed intention needs to be spelt out).

If it is intended that the proposed foam/fibre combination replicates and is fail safe for foam alone, we require much more experimental evidence before we are able to support the concept. A few experimental results have issued earlier in the consultation process and while some suggest foam/fibre is more severe than "foam only" the overall picture is far from convincing. It was shown to be the case for only 4 out of 19 composites at FIRA (August 2014) and 1 out of 6 at Intertek (October 2014).

iii) To enact the testing proposals as written it needs to be exhaustively concluded that all covers (with any new FR levels) support the prediction that foam/fibre is indeed a worst case. (With substantially melting fabrics, importantly, there may be foam-type dependencies here.).

Q8 Do you agree that the specifications set out in the draft Regulations for the test foam and fibre wrap are sufficient to achieve the objectives of the Regulations?

☐ **No**

Comments:

i) Foam industry experts have consistently opposed all attempts to use CM test foam because there are so many different chemistries, FR packages and physical characteristics available commercially (internationally) that it is unrealistic to seek a single grade with all-embracing worst case predictability. Especially with substantially thermoplastic (non-protective) covers the proposed regime creates real possibilities of match ignitable furniture entering the supply chain.

In a simple exercise with BIS's selected "Filling 1" (presented to BSI FW/6) we have already demonstrated that its specification tends to define "best case" rather than "worst case" performance.

We understand that there is only one UK manufacturing source of foam to the proposed specification. Any "counterparts" in other countries are likely be formulated differently.

ii) We are unconvinced of the technical panel claim that different foams will perform the same in the envisaged match test (and therefore provide for equivalent furniture fire properties) - in the test for "other components" it is said that the applied flame can penetrate the furniture structure to a depth of 40mm. Therefore how can it be similarly claimed that the flame will fail to influence foam 25mm below the cover fabric? (Especially where there is substantial melting and marginal results).

iii) Again we warn strongly of possible confusion in implementation of the new match regulation and faltering legal cases - since the chain of custody and enforcement authorities will be oblivious to the possibility of different chemistries/FR loadings in different sources of "specified" test foam. There is even a possibility that unscrupulous stakeholders could deliberately engineer false passes by the use of specially formulated test foam.

iv) Additionally how can the test methodology be expected to operate for furniture that (a) contains no PU foam or (b) contains infill layers other than polyester fibre? How can CM PU possibly be assumed as worst case for these types of constructions?

v) <u>FOR THESE VARIOUS REASONS WE CONTINUE TO STRONGLY RECOMMEND RETENTION OF EXISTING NON-CM TEST FOAM.</u>

vi) At point 60 we are reminded that major retail suppliers offer pre-tested covers to other manufacturers without knowing how their product will ultimately be used. This is a further factor that highlights the wisdom of retaining (widely available) non-CM test foam

vii) The existing match test foam is pretty much future-proofed as well as worst case. How much confidence is there that any new CM test foam would be similarly future-proofed?

viii) Please note the following corrections are required to the draft SI

<u>Part 1 Interpretation (3)</u> "BS3379" to read BS3379: 2005 +A1:2011

<u>Page 7</u> "Part 3" to read "Part 8"

<u>Schedule 3 clause 4</u> "BS3379 Type B" to read "BS EN ISO 5999:2013 Type MB, hardness grade 130" , 20-22 kg per square metre to read 20-22 kg/m^3.

<u>Schedule 5 Part 1</u> para 4 "Part 1 of Schedule 1" to read "Part 1 of Schedule 4". Hardness of 115-150N when determined "using BS3379" to read "using BS EN ISO 2439: 2008 Method A" (Alternatively say " hardness grade 130 to BS3379)

<u>Schedule 5 Part 2</u> para 6 "Part 1 of Schedule 3" to read "Part 1 of Schedule 4". 24-26 kg per square metre to read 24-26 kg/m^3

NB in all cases density is measured by BS EN ISO 845

ix)By way of further information on CM foam production, we emphasize that the

current ignition control Schedule 1 Part I enforces a crib 5 weight loss of less than 60g. Different companies will formulate their FR package for different margins of safety according to established quality control procedures. Therefore commercial counterparts from different manufacturing sources can (perfectly legitimately) differ in the fine detail of their ignition resistance and their behaviour in composite rig fire tests. Predicted protection from one foam will not necessarily translate to an alternative source of manufacture.

Q9a Do you agree that the regulations should provide a protective cover option?

☐ **Yes**

Q9b If yes, do you agree with our proposed definition of protectiveness?

☐ **Yes**

Comments: It is perhaps arguable whether the criterion should be a hole of finite size (2mm) or indeed "no visible hole". 2mm is probably OK because there seems little likelihood that this would allow flame penetration to 40mm. In situations where this option is elected (or even mandated) the cover fabric will essentially meet the protective/ignition resistant criteria of the existing covers. Therefore our concerns about CM test foam variability become less relevant. There is, however a substantial difference between these types of covers and those that will allow flame penetration of the filling(s) to a depth of 40mm, and in this scenario the different interactive capacity of differently formulated foams is a really serious concern.

Q10 Do you agree with the proposed requirements for components close to the cover?

☐ **No**

Comments: We agree with the measures so far as they go but feel the need for additional regulation. It is acknowledged that flame damage can penetrate 40mm but in terms of secondary ignition of untested components, those exterior to the outer fabric can be equally/more significant especially if they are encased in non-regulated, non protective fabric. Therefore once again we urge that braids, trims, piping cord and facings should be added to the list of items to be regulated.

Q11 Do you agree that there is no need for the cigarette test for covers that pass the revised match test?

☐ **No**

Comments:
i) Many stakeholders continue to have difficulty grasping the basic science that match and cigarette ignition are mechanistically different. As stated in BS 5852:2006 "It cannot be assumed that protection against large flaming sources will automatically give protection against smouldering ignition. It is therefore necessary to submit test specimens to both smouldering and flaming ignition tests" "Ignition criteria are given for progressive smouldering and for flaming. These are both critical but are different modes of ignition and should be assessed separately". See also "Fire Behaviour of Upholstered Furniture and Mattresses" Krasny, Parker, Babrauskas.
ii)Test houses are likely to have substantial data bases showing that under current SI 1328 conditions a high proportion of match resistant composites are cigarette resistant, but such data bases are historical and they are also loaded towards the mutual requirement of both match and cigarette pass. Because cigarette failures are illegal, test houses cannot be expected to see as many submissions.
iii) If test methods and FR levels change under proposed new regimes such data bases become obsolete and re-learning will ensue.
iv) We therefore advocate that 100% synthetic covers can be cigarette exempted unless used over natural fibre fillings but that testing should continue (for at least a review period) on covers that contain any natural feedstock (cotton, leather etc).
v) Interpreting discussions that have taken place over the last year or so, most test houses seem to admit that they see a small number of match passes/cigarette failures, but any fashion move towards more natural fibres (or reduced FR content) could easily magnify this concern.
(Pro memo, CEN and NIST work has shown independently that RIP (reduced ignition propensity) cigarettes are still capable of igniting smoulder-prone composites).
vi) How can the advisory group recommend deletion of a test when the statutory requirements state "furniture must not include upholstery that does not pass the cigarette test specified in Schedule 2"

Q17 Do you have any other comments on the proposals or draft regulations?

☐ **Yes**

Comments:

i) The FFRs were originally introduced in the face of unacceptable fire risks posed by foam filled furniture covered with synthetic fabrics. Solutions were provided at this time by the foam industry's introduction of combustion modified foam (which enabled the implementation of the foam industry's crib 5 test). As a result over the last 30yrs we have accrued considerable experience in the fire behaviour of furniture. We therefore feel we are well placed to speak authoritatively on test foams and their impact on real life fire situations.

ii) The latest consultation still fails to present hard scientific evidence that existing fire safety will be retained or improved – in the previous public consultation only 15% of stakeholders supported this claim by BIS, and several eminent fire experts requested that such evidence be provided. This includes explicit requests at two hitherto un-minuted meetings with BIS representatives.

iii) BIS and various Ministers in their previous statements have been seriously misinformed that real life fire safety can be judged purely on the basis of small scale ignition tests. Since all furniture can be ignited, fire safety also embraces post-ignition behaviour (rate of fire growth, escape time, time to flash over). The use of other metrics is therefore essential before knowing the overall effects of the proposed changes. "Only full-scale room fire tests can serve as primary reference for fire hazard performance of upholstered furniture" (*Krasny, Parker, Babrauskas "Fire Behaviour of Upholstered Furniture and Mattresses" ISBN 0-8155-1457-3)*

iv)To embark on legislation without having researched this thoroughly is short-sighted because the effect of changes on fire injuries and death will be slow to emerge and may take several years to show in fire statistics. If negative trends were to emerge the time to correct them would also be measured in years. Does Parliament want or need to take that risk?

v) The existing regulations have already been fire-safety validated in a series of different public domain publications which include:

Fire-LCA Model: Furniture Study. SP Report 2003:22 ISBN 91-7848-958X

Reaction to Fire of Modern UK Furniture. Marchant: FIRA Furniture Research Manual 58

Europur Studies on Methods of Test for the Burning Behaviour of Upholstered Furniture Creyf, Hurd, & King, Cellular Polymers 14 (4) 1995

CBUF Fire Safety of Upholstered Furniture. Interscience

Some Flammability Studies on Furniture Composites – A Comparison of Data obtained from Full Scale Tests and from the Cone Calorimeter" Hurd, King & Powell, Cellular Polymers 10 (1) 1991

*Fire Safety Platform (*www.firesafetyplatform.org) and TNO Efectis report (http://www.firesafetyplatform.org/wp-content/uploads/2013/06/Efectis-Netherlands-2010.pdf) and they are therefore somewhat better than "a proxy".

In the event modern constructions can resist ignition at the crib 4-7 or large gas burner level and can offer extended escape time even under such provoked ignition. (See references above). Fire professionals no longer talk about how rapidly furniture fires develop and existing provisions are very much fit for purpose as demonstrated by Government sources. (Safer Homes, Greenstreet Berman).

vi) Within two documents already issued by BIS in October 2014 are a set of 12 Intertek match test experiments. It is noteworthy that 3 constructions, which failed existing Schedule 5 Part 1 requirements, provided passes to proposed new match regimes (with and without polyester fibre interlayer). This does not fit with the judgement that fire safety will be preserved by the new match test - indeed it smacks seriously of a less rigorous test that will reduce fire safety of some constructions!

vii) There are some implications for non-compliant furniture items – under present conditions if compliant fabric has been used over non-compliant foam (even

blatantly pre-1988 type) there is a good chance that the furniture would still be match resistant since the Schedule 5 Part 1 test foam is principally a worst case. However, under the new proposal where it appears protective covers will not be mandated such furniture could easily be match ignitable with short escape time.
viii) In the document "Consultation on updating the Furniture and Furnishings (Fire) (Safety) Regulations September 2016" there are several issues:
5.The proposals Clause 19: It was not just "cheaper foam fillings" that created flammability concerns – a second factor was synthetic fabrics. (Published research showed that both these and other fillings such as polyester, coir fibre and latex foam posed post-ignition life threats.) This point may seem pedantic but if increased use of thermoplastic covers were to be encouraged we can anticipate concerns to re-surface – see further reference at Question 22.
Testing Clause 62 As stated elsewhere the foam industry has warned repeatedly of potential fire safety and regulatory/enforcement issues resulting from the "cherry picking" of one CM foam grade (very possibly from a single source) out of the multiple families/chemistries/grades that are spread throughout the supply chain. People seem unwilling to grasp this point.
Annex 5 Research references. Many of these references were already circulated in 2014, when we commented on their perverse selection "There are 6 references to the European Food Safety Authority (EFSA) Scientific opinion on brominated substances in food. Of these 4 appear to conclude "unlikely" or "no" concern. The 5th (PBDEs) concluded potential concern for penta BDE (banned in Europe since 2004 and not knowingly used in UK furniture) but no concerns for decaBDE. The 6th paper attempted to model emergent substances in the absence of experimental data and concluded a need for in-depth studies (as would in any case be required under REACH) The Harrad et al review demonstrates, as is known, that human exposure to trace quantities of brominated species is possible. In common with primary sources, no risk evaluations are forthcoming.
Three *National Center for Biotechnology Information* references conclude developmental effects of penta BDE (banned in Europe since 2004 and not knowingly used in UK furniture) although one paper states that there was a mix of positive and negative behavioural outcomes.
We have continued concerns that BEIS seem unwilling to defend UK industry's use of FR additives that have undergone risk assessment and REACH analysis based on sound science, and seeks to use the FFRs as a secondary method of substance restriction. On the other hand BEIS seems eager to accept US scaremongering and assumptions based on hazard rather than risk science.
The Impact Assessment report contains unsound and/or contentious narrative in area such as:
Harmfulness of flame retardants, referencing hazard instead of risk (Pages 1, para 2.2, Page 17 5.47 and 5.48)
Revoking the cigarette test (Pages 1, 4 Box 2)
Cost savings/potential for FR reduction (Page 6 4.2)
Ease of enforcement (Page 2)
EU match test (Box 1 page 4)
Inability of air to access burning flame (Annex 2)

These issues have either been dealt with above or by various stakeholders in previous consultation .

Comments: Click here to enter text.

Q22 To what extent do you agree that, overall, these proposals represent a reasonable compromise – bearing in mind the information in this consultation document, feedback on the previous (2014) consultation, and other stakeholder input during the review?

☐ **Disagree**

Comments:
i) We still see no real need for changes to the match test and there is continued absence of hard fact to demonstrate its shortcomings. BEIS state publicly (Sunday Times 14th August) "there is no evidence that any furniture is unsafe under current regulations and that fires and deaths involving furniture are falling".
From earlier consultation it appears that there are minimal opportunities for cost saving and FR reduction and yet a case is still being made for test changes to facilitate these flawed ambitions.
ii) BEIS maintains that fire safety will be retained but this seems to be more aspiration than substantiated fact. It is impossible to quantify fire safety purely in terms of ignition resistance and all common sense and theory suggests that reduced FR levels will adversely affect rate of fire growth and escape time in a real house fire scenario. This is backed up by countless years of industrial experience in the small gas flame testing of foam/fabric laminates for automotive interior trim.
iii) The way in which the new test encourages more thermoplastic cover use (subject to how the protective aspect is to be implemented) is of great concern. Melting fabrics create pool fires which in a real life fire situation increase rate of heat development etc – authors such as Ames and Babrauskus suggest a 50% contribution to total heat release
iv) The EU funded Combustion Behaviour of Upholstered Furniture Report (CBUF) of 1995 recommended against using polypropylene fabrics, which were common in furniture at that time. Of concern is whether the new match test would permit a return to polypropylene or other polyolefin-based fabrics in the UK. (Industry has on file rig-test video that demonstrates the dangerous fire behaviour of polypropylene).

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 BEIS 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

BEIS/16/11/RF