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Sustainability
Network for
Standardisation

Consultation on updating the UK Furniture and Furnishings (Fire) (Safety) Regulations September 2016

Response by the Sustainability Network for Standardisation

Sustainability Network for Standardisation / Top Floor, Back Building, 148–150 Curtain Road, London, EC2A 3AR
T: +44 (0)7578 552 355 / E: claudia.kuss-tenzer@sustainablestandards.org.uk / www.sustainablestandards.org.uk / CIC no. 09092007

Introduction

The Sustainability Network for Standardisation (SNS) welcomes the opportunity to respond to this consultation, as we consider that flame retardant chemicals have a long and problematic history. It is time that the UK moved into line with those countries and regions, notably California, who aim to both provide a good level of fire protection and reduce the use of flame retardant chemicals.

The Sustainability Network for Standardisation is a UK-wide initiative to safeguard the representation of environmental interests in the standards development process. Our work spans across a range of environmental issues including energy and resource efficiency, nano-technologies and materials, biodiversity and the safe use of chemicals such as flame retardants.

The SNS would like to thank Dr Michael Warhurst of ChemTrust[1] for sharing his response to this consultation.

Our concerns

Lack of progress in implementing a reliable and safe test regime

We welcome BEIS' revised proposals following on from the 2014 consultation for updating the FFRs. We are, however, very concerned about the lack of progress made in the 2-year interim.

It is widely acknowledged that the current test regime is out of date and no longer reflects the way in which modern furniture is constructed.

Given that the current regime is not fit for purpose and puts the public at risk by exaggerating the level of safety realistically provided, we are particularly concerned about the ongoing delay in implementing an improved test regime.

Risk: responding to new knowledge and understanding of risk

The current test regime does not only inadequately address current furniture manufacturing methods – it also does not reflect how our understanding of risks and hazards has evolved since the FFRs were introduced nearly 30 years ago.

There is an overwhelming body of evidence pointing to the hazards to human and environmental health associated with the use of flame retardants (FRs).

This evidence must be taken into account in any holistic regulatory impact assessment and fire risk must be balanced against the risks posed by widespread exposure of people and the environment to FRs.

Fire toxicity, and the emerging evidence that FRs increase toxicity, must also be taken into account when assessing risk and regulatory impact.

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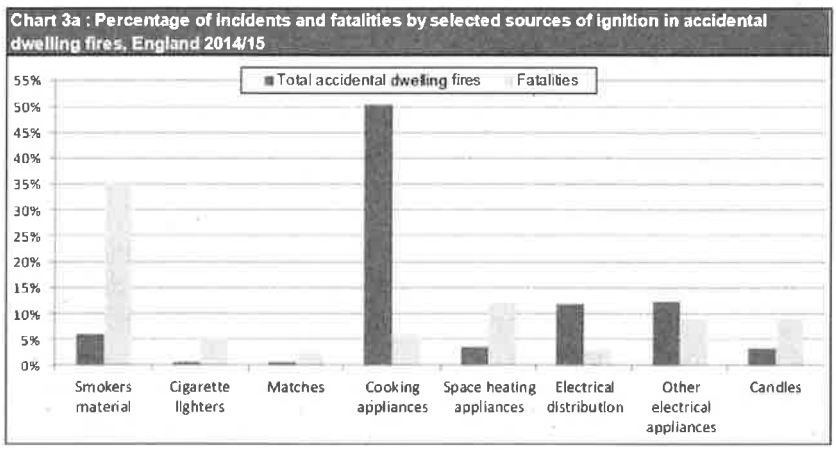
[1] www.chemtrust.org.uk

Proportionality of the regulatory response: a 'more severe' match test vs. behaviour-change approaches and targeting at-risk population groups

Accidental fires are caused by human error and risk-taking behaviours. Alongside regulations, which aim to prevent harm through technological interventions, behaviour-change interventions are critical in reducing risk of harm.

Smokers' materials (e.g. cigarettes, cigars or pipe tobacco) continue to cause by far the largest share of deaths in accidental dwelling fires. In 2013-14, smokers' materials caused 80 deaths (37%). By contrast, deaths due to ignition by an open flame stood at 22 fatalities, breaking down as follows: 5 deaths due to ignition by matches, 6 due to cigarette lighters and 11 due to candles[2]. The picture for 2014/15 was similar (see chart below).



Some of the 11 deaths caused by open flames are also related to smoking, i.e. the (mis)use of cigarette lighters and matches.

Looking specifically at furniture & furnishings fires (F&F fires), the 2009 government-commissioned Greenstreet Berman report notes that 'while the number of F&F fires due to cigarettes fell, they remain the main source of ignition in recent years', making up 52% of F&F fires while matches make up 16% of F&F fires.

These fire statistics provide clear evidence that the population groups most at risk of injury and death resulting from accidental house fires are smokers.

The current and proposed test regime require a match test, with the impact assessment stating that 'most fabrics which pass the match test will automatically pass the cigarette test because the match test is more severe'.

It is common knowledge that these 'more severe' requirements of the match test have led to the increased use of FRs and has resulted in the long-term exposure of the entire UK population to these chemicals, with UK residents showing some of the highest concentrations of FRs in their blood serum.
In our view, continuing to require this type of 'more severe' test is a disproportionate regulatory response given the level of risk resulting from open flame ignition sources and the

[2] Home Office, Fire Statistics England 2014/15 (Statistical Bulletin 08/16), 29 June 2016

uneven distribution of fire risk across the UK population, i.e. that smokers are the population group most at-risk of fire deaths and injuries.

A more proportionate response and the most effective way of preventing fatalities would be to require a cigarette (smoulder) test for furniture and furnishing, combined with fire safety interventions addressing specifically behaviour change in smokers.

Such a balanced approach would reduce the exposure of the entire population and the environment to potentially harmful chemicals and reduce the risks associated with FRs (more detailed evidence provided below), while still providing high levels of fire safety.

Balanced risk assessment: taking into account long-term environmental and human health risks of FR exposure

The history of FRs is one of growing concerns, yet widespread use – particularly in the UK. This has led to a major problem of furniture in the UK being coated with chemicals which are, in many cases, now banned at EU level – and in some cases they are now classified as global POPs (persistent organic pollutants).

As the Washington Post wrote in 2013, studies in laboratory animals and humans have linked PBDEs, to thyroid disruption[3], memory and learning problems[4], delayed mental and physical development[5], lower IQ[6], advanced puberty[7] and reduced fertility. Other flame retardants have been linked to cancer[8].
Flame retardants have been detected hundreds of miles from human sources, including in the tissue of sperm whales and of arctic marine mammals, suggesting long-distance dispersion through water and air currents[9] [10].
According to the European Food Standards Agency (EFSA), novel and emerging BFRs, offered as substitutes for banned substances, also pose a concern with convincing evidence that they are genotoxic and carcinogenic, warranting further surveillance of their occurrence in the environment and in food[11].

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[3] 'Polybrominated Diphenyl Ether (PBDE) Flame Retardants and Thyroid Hormone during Pregnancy', Jonathan Chevrier, Kim G. Harley, Asa Bradman, Myriam Gharbi, Andreas Sjödin and Brenda Eskenazi[1], *Environmental Health Perspectives*, 2010
[4] *Toxic effect of PBDE-47 on thyroid development, learning, and memory, and the interaction between PBDE-47 and PCB153 that enhances toxicity in rats*, He P[1], Wang A, Niu Q, Guo L, Xia T, Chen X.
[5] 'In utero and childhood polybrominated diphenyl ether (PBDE) exposures and neurodevelopment in the CHAMACOS study', Eskenazi B, Chevrier J, Rauch SA, Kogut K, Harley KG, Johnson C, Trujillo C, Sjödin A, Bradman A., Environ Health Perspectives. 2013 Feb; 121(2):257-62
[6] 'In utero and childhood polybrominated diphenyl ether (PBDE) exposures and neurodevelopment in the CHAMACOS study', Eskenazi B, Chevrier J, Rauch SA, Kogut K, Harley KG, Johnson C, Trujillo C, Sjödin A, Bradman A., *Environmental Health Perspectives* 2013 Feb;121(2):257-62, http://www.ncbi.nlm.nih.gov/pubmed/23154064
[7] 'Serum PBDEs and Age at Menarche in Adolescent Girls: Analysis of the National Health and Nutrition Examination Survey 2003–2004', Aimin Chen,[a] Ethan Chung,[a] Emily A. DeFranco,[b] Susan M. Pinney,[a] and Kim N. Dietrich, Environ Res. 2011 Aug; 111(6): 831–837, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3143295/
[8] Office of Environmental Health Hazard Assessment, California, 28 October 2011, http://oehha.ca.gov/prop65/prop65_list/102811list.html
[9] 'Levels of Polybrominated Diphenyl Ether (PBDE) Flame Retardants in Animals Representing Different Trophic Levels of the North Sea Food Web', Jan P. Boon , Wilma E. Lewis, Michael R. Tjoen-A-Choy, Colin R. Allchin, Robin J. Law, Jacob de Boer, Cato C. ten Hallers-Tjabbes and Bart N. Zegers, *Environmental Science and Technology,*, 2002, *36* (19), pp 4025–4032
[10] 'Exponential increases of the brominated flame retardants, polybrominated diphenyl ethers, in the Canadian Arctic from 1981 to 2000', Ikonomou MG, Rayne S, Addison RF. Environmental Science and Technology 2002 May 1; 36(9):1886-92, http://www.ncbi.nlm.nih.gov/pubmed/12026966
[11] 'There is convincing evidence (including more extensive toxicity data) that the emerging BFR *tris(2,3-dibromopropyl) phosphate* (TDBPP) and the novel BFR *2,2-Bis(bromomethyl)-1,3-propanediol* (DBNPG) are genotoxic and carcinogenic, warranting further surveillance of their occurrence in the environment and in food. Based on the limited experimental data on environmental behaviour, *1,2-bis(2,4,6-tribromophenoxy)ethane* (BTBPE) and *hexabromobenzene* (HBB) were identified as compounds that could raise a concern as reports indicate that they can accumulate in the body over time.', EFSA, http://www.efsa.europa.eu/en/topics/topic/bfr

Due to this evidence, the use of certain BFRs has been banned or restricted in the European Union. As one of the concerning characteristics of BFRs is their persistence in the environment, they remain a likely public health risk even after being banned or restricted. Despite the scientific evidence of the problems caused by many of these chemicals, their producers have continued to lobby for their continued use. In addition, the EU's chemicals regulatory systems are not yet managing to deal properly with this group of chemicals. Here are two examples:

- When registering the chemical Deca BDE under REACH the companies concerned claimed it had no hazardous properties, and so did not undertake an exposure assessment. Meanwhile the European Chemical Agency decided that it was a very persistent, very bioaccumulative (vPvB) substance and a persistent, bioaccumulative and toxic (PBT) substance in December 2012. As part of their recommendation to phase out most uses of Deca, the ECHA committees expressed their concern in December 2015 that the producing industry had still not updated its registration dossier to take into account that Deca was identified as vPvB and PBT.[12]

- Although a number of Brominated Flame Retardants (BFRs) have had their use restricted in the EU, scientists are identifying further 'novel' or 'new' BFRs in dust in UK houses[13], in blood serum in Sweden[14] and in breast milk in Denmark (data presented at a conference, not yet published). This demonstrates that the EU regulatory system is not yet working effectively and rapidly enough to restrict the use of such chemicals.

While the Greenstreet Berman report was commissioned to provide evidence on the effectiveness of the FFRs to date, no equivalent report has been commissioned by the UK government to comprehensively examine the increasing evidence of the impacts of FRs on human and environmental health. Neither has the existing evidence has been systematically included in the regulatory impact assessment.

The impact assessment can therefore not provide a balanced picture of the impact of the FFRs in terms of *both* fire safety and the risks due to exposure to harmful chemicals.

Flame retardants and fume toxicity

BEIS' Impact Assessment states that 'in the USA, a majority of residential fire deaths result from inhalation of toxic gases, and soot and smoke can obscure escape.'

While not mentioned in the Impact Assessment, UK fire statistics show that this is also the case in the UK: 41% of fire-related deaths in Great Britain were caused by the victim being overcome by gas, smoke or toxic fumes – by far the largest cause of deaths in house fires. In addition, 20% of deaths are caused by a combination of burns and being overcome by gas or fumes[15] (see full breakdown in chart below).

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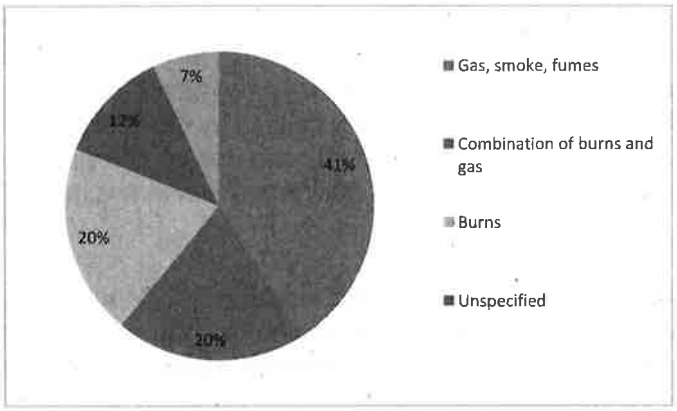
[12] *RAC and SEAC Opinion on an Annex XV dossier proposing restriction on Bis(pentabromophenyl) ether (DecaBDE)*, 2015 http://echa.europa.eu/documents/10162/b5ac0c91-e110-4afb-a68d-08a923b53275

[13] Al-Omran, L. S., & Harrad, S. (2016). *Distribution pattern of legacy and "novel" brominated flame retardants in different particle size fractions of indoor dust in Birmingham, United Kingdom.* Chemosphere, 157, 124-131.

[14] *Analysis of new brominated flame retardants in human serum and background air,* Swedish EPA, October 2016, http://naturvardsverket.diva-portal.org/smash/record.jsf?pid=diva2:999732

[15] ibid



The presence of flame retardants has been shown to increase the toxicity of fumes released in house fires, thereby reducing the capacity to escape a fire as a result of being overpowered by harmful fumes and gases.[16] [17]

Reducing the use of flame retardant chemicals should therefore be a priority not only from a long-term consumer and environmental health perspective, but also because it has the potential to significantly reduce the number of fatalities caused by toxic gases in accidental house fires.

The Greenstreet Berman report did not include an analysis of this evidence and therefore did not attempt to quantify the number of deaths that may *caused*, rather than prevented, by the use of FRs. Similarly, this evidence is omitted in the impact assessment.

Lack of impetus for designing out flammability and toxicity

It is our analysis that the proposed regulations will effectively maintain the status quo, albeit within a revised testing regime, and do not create a strong enough impetus to change furniture design and construction to design out *both* flammability and toxicity.

The consultation document appears to place considerably less emphasis on the original policy objective of reducing the use of flame retardants, merely acknowledging that 'regulatory change has the potential to reduce the use of flame retardants in the production of furniture and bring associated benefits to industry and consumers' (p. 4).

We are also concerned that in attempting to address industry concerns over the 2014 proposals, the new proposals increase the complexity of the compliance regime, as exemplified by the decision tree under 'Summary route to compliance' (p. 21).

The Impact Assessment mentions a 'list of protective materials' which would provide a route to reducing the use of chemical flame retardants – however, this list does not appear to be included or discussed in the Consultation document.

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[16] *Halogenated Flame Retardants: Do the Fire Safety Benefits Justify the Risks?,* Reviews on Environmental Health Volume 25, No 4, 2010, Susan D. Shaw, Arlene Blum, Roland Weber, Kurunthachalam Kannan, David Rich, Donald Lucas, Catherine P. Koshland, Dina Dobraca, Sarah Hanson and Linda S. Birnbaum

[17] *Assessment of the fire toxicity of building insulation material,* Energy and Buildings, 43 (2-3), 2011, pp. 498-506, Anna A Stec and T Richard Hull

Furthermore, the new requirement to test covers or interliners over combustion-modified foam (i.e. foam treated with chemical flame retardants) locks manufacturers into using flame retardants and runs counter to the idea of increasing flexibility for manufacturers to choose alternative and innovative materials and technologies to provide fire safety.

Ineffective FR labelling proposals

We welcome and support the proposal to require the indication of whether flame retardants have been used to comply with the Regulations and we agree with the statement made in the Impact Assessment that 'Better labelling will enable consumers to make informed choices'.

However, to make an informed choice, consumers need to be able to see this information at the point of purchase, similarly, for example, to the *visible* display label required to show the energy efficiency rating of energy-using products.

The proposals for a permanent label as set out do not provide an effective way for consumers to easily obtain this information at the point of purchase and therefore cannot be said to bring the consumer benefit claimed in the impact assessment.

The label should also state the chemical substances used as flame retardants. The inclusion of this information has two benefits:

- it allows consumers to avoid products containing substances which may be under investigation by public authorities due to public and environmental health concerns at the time of purchase; and
- should a fire retardant substance be banned, this information will enable the appropriate handling of products at the end of their useful life.

From our own investigations, currently even retailers are ignorant of what chemicals are in the products they sell and are unable to ascertain this information upon consumer request.

Summary

Over the past two years since the initial consultation in 2014, little progress has been made in implementing an improved test regime that provides adequate public health and safety assurance.

The current proposals add complexity, while providing little impetus for change in the design of furniture to reduce *both* flammability and toxicity.

On the contrary, the requirement for a 'more severe' match test and the use of CM-foam in the test set-up continue to lock manufacturers into the use of flame retardants as the simplest route to compliance.

The proposed permanent label to indicate whether the product contains flame retardants does not adequately provide consumers with information *at the point of purc*hase and therefore does not enable them to make informed choices.

Our proposals

Cigarette test instead of match test

We favour a substantial simplification of the regulations. Furthermore, we would like to see changes to the accompanying test regime that remove the need for the use of flame retardants and create genuine impetus for designing out both flammability and toxicity.
We therefore propose the removal of the requirement for a match (open flame) test and the introduction of a cigarette (smoulder) test modelled on the Californian standard, Technical Bulletin 117-2013.

We believe this test maintains high levels of fire safety by addressing the largest cause of death in furniture fires, ignition by smokers' materials.

Furthermore, using a smoulder test instead of a match test not only has the potential to reduce the number of fire deaths resulting from the inhalation of toxic gases and fumes but also prevents the unnecessary exposure of the entire UK population to proven and potentially harmful chemicals.

Visible display label

We would like to see the introduction of a requirement for a *visible display* label to provide consumers with point-of-purchase information on the presence and type of flame retardants contained in the product, similar to the EU energy label.

The requirement for a visible label to displaying the energy-rating of energy-using/related products at the point of purchase has been highly effective in driving measurable market transformation with regards to reducing the energy consumption of appliances.

We believe a visible label displayed at the point of purchase would have a similar market transformation effect in the UK furniture industry by empowering consumers to make genuinely informed purchasing decisions.