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Earth Sciences
UNIVERSITY OF TORONTO

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Christine Knox
Regulatory Delivery
Department for Business, Energy and Industrial Strategy
Second Floor, 1 Victoria Street
London, UK SW1H 0ET
furniture.consultation2016@bis.gsi.gov.uk

Dear Ms. Knox,

I am writing in response to the Review of the Furniture and Furnishings (Fire)(Safety) regulations (FFRs) that have been open for public consultation. I am a professor in Environmental Chemistry with expertise in studying sources, emissions, environmental behaviour, and human and ecosystem exposure to flame retardants. This research has also extended to investigating flammability standards. I have published over 120 papers in the scientific literature of which many have dealt with flame retardants. Below I briefly outline several concerns arising from the contents of the consultation documents.

1. Demonstrated need for open flame flammability standard. The draft documents recommend implementing an open flame match test and removal of a cigarette test for furniture coverings.

I have yet to see data that clearly show the need for an open flame flammability standard for upholstered furniture items. Whereas fire incident data in several countries show a decline in fire-related deaths and injury, no analysis to date has linked this decline to the implementation of a flammability standard for furniture (or any flammability standard to my knowledge). As with any data that show a time trend, several factors could account for that trend of a decrease in fire-related household deaths and injury. Those other trends are a decreased incidence of smoking indoors, widespread use of smoke detectors, and improved building safety codes. All have occurred simultaneously with the implementation of flammability standards. No analysis has been able to tease apart the contributions to decreases in fire-related incidents with any one of those coincidental time trends.

Some data suggest that deaths and injury due to building fires is caused primarily by smoke inhalation. Smoke production is caused by open fires, but even more so by lower temperature smolder conditions. Smolder conditions are promoted by the use of organic-based flame retardants. As such, flame retardants used to meet open flame standards may actually exacerbate fire-related deaths and injury.

A strong, evidence-based revision of the UK FFRs needs to unequivocally show the fire safety benefit of using an open flame standards, which is typically met with the use of flame retardants that can increase fire hazard by creating smolder conditions. This evidence is not presented in the consultation documents.

2. Proposed open flame match test will require use of flame retardants with uncertain health and ecological impacts. It is evident from the consultation documents that the use of flame retardants to meet the open flame match standards is not specified. However, past experience and conversations with furniture manufacturers shows that such a flammability test is typically met with the use of a flame retardant.

We have often heard the argument that "safe" flame retardants can be used to meet an open flame standard. Our research shows that the functionality required for a chemical to act as flame retardants translates to a chemical or chemical mixture that is toxic and/or environmentally persistent. Moreover, the most economical flame retardants used to meet open flame tests in upholstered furniture have a very high

probability of being toxic and/or persistent. We recently reviewed 94 chemicals used or marketed as flame retardants [1]. We found that 40% of those chemicals have a persistence and/or ability to travel long distances in air that would lead to a medium or high level of concern. Sixty percent of the 94 chemicals had a persistence and/or ability to travel long distances that was similar to that of the now-banned polybrominated diphenyl ethers (PBDEs). Evidence of the toxicity of older and newer flame retardants continues to be published. Based on the scientific evidence, it is improbable that economically-viable, "safe" flame retardants would be used to meet the proposed open flame match flammability test being proposed.

There is a time lag of many years between the introduction of a "new" flame retardant and demonstration of its environmental and/or health consequences. While research is being conducted to investigate the hazard/safety of the flame retardant, that chemical is used to meet flammability standard in new products. A hazardous designation of a flame retardants, as was the case with PBDEs and a growing number of other flame retardants, means that new production is stopped, but not that uses in in-use products stops. Rather, the public continues to be exposed to that hazardous chemical in older in-use furniture until the furniture is replaced. Even when the furniture is replaced, exposures may continue as the furniture may be see a second use or if it enters the waste management stream. Thus, use of flame retardants with unknown human and environmental health hazard or safety represents a significant source of exposure even it is designated as such.

3. Proposed labelling will not improve consumer safety. Labelling does not necessarily safeguard the public. The use of labelling as a "safety" mechanism assumes that consumers know to check labels, that they are well versed in the meaning of the label, and that they are in a circumstance in which they have a choice of which product to purchase or use. Labelling does not protect citizens that receive second-hand products.

4. Decisions on flammability standards need to be based on sound evidence and a benefit-risk approach. As I mentioned above, strong evidence does not support the proposed changes to the flammability standard and particularly to the implementation of an open match test. I have mentioned the potential risks involved with the use of flame retardants to meet furniture flammability standards. Those risks need to be balanced by clear evidence of the benefits that would accrue from the flammability standard. That clear benefit-risk analysis was not apparent in the documentation presented.

In closing, I strongly urge a reconsideration of the recommendations for a more "severe" open match test for upholstered furniture items based on the lack of demonstrated fire safety benefits and the demonstrated risk involved by the use of economically available organic-based flame retardants used to meet such as standard.

Sincerely,

Professor
Department of Earth Sciences
Cross-appointed to:
Department of Chemical Engineering and Applied Chemistry
Dalla Lana School of Public Health
School of the Environment
Department of Physical and Environmental Sciences, UoT Scarborough