FLAME RETARDANTS IN UK FURNITURE

Briefing document APG

In the UK domestic upholstered furniture is treated with chemical flame retardants and the research linking these chemicals to toxic health effects is now too compelling to ignore.

During the furniture's life these *flame retardants release into the home,* into the indoor air environment, they settle in dust, are ingested, permeate skin and bio-accumulate in our bodies.

These FR chemicals join the list of chemical pollutants in the air of our homes that adversely affect our health and most adversely can affect the health of our children. FR chemicals have been found to be carcinogenic, neurotoxic and can disrupt our hormone systems.

Children are disproportionately affected. Flame retardant chemicals can cross the placenta in the womb, they are ingested in breast milk by a baby and are ingested by a small child's hand to mouth behaviour. *Chemical flame retardant exposure in children is linked to impaired neurological development and reduced IQ*.

At the furniture's end of life, 30-40% of our waste upholstered furniture contains flame retardants that are designated by the Stockholm Convention as POPs (persistent organic pollutants). They are not safe to go to landfill and as such the Environmental Agency has determined that all waste furniture containing POPs is to be incinerated. However there is no reliable cost effective way of determining whether furniture contains POPs and as such *100% of _waste upholstered furniture in the UK is destined for incineration.*

The reason that we in the UK (unlike Europe) treat furniture with flame retardants is to comply with the "open flame test" in the 1988 Furniture Fire Safety Regulations (1988 Regs).

In 2019 the Environmental Audit Committee undertook a thorough cross party investigation of flame retardants in furniture and determined that the *UK should follow the EU and US approach* where a smouldering cigarette test is undertaken - and this can be met without the use of chemical flame retardants.

The US, when they changed their law in 2013 from an open flame test to a smoulder test concluded that they were unpersuaded there was any fire safety benefit from the use of flame retardants. They also concluded that the health harms from chemical flame retardants clearly outweighed any perceived fire safety benefit.

The 1988 Regs have been under review for over 14 years and a consultation period has just closed - *5793 upholsterers* signed a letter to the Government highlighting their occupational exposure to the toxic chemical flame retardants and objecting to their complicity in introducing these forever chemicals into the homes of the general public.

Chemical flame retardants are linked to infertility issues, reduced IQ in children, developmental problems, disrupted metabolism, thyroid problems and cancer.

The most useful documents to read are:

1. The 2019 Environmental Audit - (conclusion clause 8)
2. The Fire Brigade Union Conference Record of Decisions 2023 (clause 33)
3. The UK Scientific Consensus 2023

Environmental Audit Committee (EAC)
In 2019 the UK Environmental Audit Committee, Toxic Chemicals in Everyday Life concluded that the 1988 law should be changed to line up with the rest of the EU and the US smoulder test.

> *"We understand the challenges the Government has faced in finding consensus with varied and opposing industry views and share its belief that there is a need for both fire and chemical safety; however, that does not justify continued ministerial paralysis while the public remain exposed to harmful chemicals in their homes. Inaction has allowed unnecessary and potentially toxic chemicals to continue to enter homes for over a decade. Chemicals which, while purporting to protect the public from fire, cause more toxic smoke and increases the production of carbon monoxide and hydrogen cyanide." (Conclusion Clause 8)*

Yet despite this instruction from the EAC the new draft regulations continue with an open flame test - and in reality - the use of toxic chemical flame retardants will continue. The EAC have objected to the current Government's new draft regulations and the Department for Business and Trade responded to the EAC. In their response they stressed (in point 2) that "an open flame represents the source of ignition in 30% of domestic fires where furniture is the first item to ignite". We believe this to be a very misleading statistic to rely upon as it does not address (a) the size of the ignition source (the chemicals are only designed to delay ignition if the size of flame is very small and held in place for a very short time); and (b) it does not address whether the sofa was directly lit by the candle or whether the candle lit a newspaper or cardigan or bin which in turn lit the sofa (in which case the flame retardants would be overwhelmed). Speaking directly to the OPSS, Sean Valoo admitted that the OPSS were in a difficult position because the Characteristics of Modern Domestic Fire Scenarios report was not prepared with the question "do chemical flame retardants save lives" in mind. And there is not a report out there that I am aware of that reaches that evidence based conclusion.

Fire Brigade Union
The Fire Brigade Union is concerned that: "chemical flame retardants used in furniture increase toxicity in fires and are hazardous to human health and the environment".

> *"There is further gathering evidence that chemical flame retardants provide negligible delay to fire ignition, worsen fire conditions, and therefore will increase dangers to firefighter safety and welfare." (Record No. 33) Fire Brigade Conference Record of Decisions 2023*

Fire and smoke toxicity are the principal cause of death in fires. The University of Central Lancashire reports that flame retardants increase smoke toxicity more than they reduce fire growth rate - yet the OPSS state that the smoke toxicity is outside the ambit of this consultation. The OPSS is only looking at the behaviour of flame retardants up to the point of ignition, not beyond. Could the flame retardant chemical usage be doing more harm than good? In toxic smoke disabling fire victims, in smoke toxicity causing fire fighter cancers, in smoke opacity obscuring rescue - the toxicity of smoke as chemical flame retardants burn cannot be excluded from the ambit of these draft regulations. The legitimacy of this new law is totally undermined if the full lifespan and behaviour of the chemical flame retardants is ignored. Data on fire fighter cancer rates prior to the introduction of chemical flame retardants and after their introduction needs to be evaluated and taken into consideration.

UK Scientific Consensus
In January this year a cross section of scientists in the UK joined together to highlight the health risks of flame retardant chemicals as they migrate out of furniture into house dust, permeate skin, are ingested and consumed. They are of particular concern to small children as noted in the Government's Fire Safety in Upholstered Products report clause 3.4.

> *Compared to older children and adults, when normalised to their body weight, young children such as toddlers are more highly exposed to chemicals such as CFRs. The higher exposure of young children stems from a combination of greater hand-to-mouth and mouthing behaviours, as well as a high surface area to volume ratio, and a lower body weight that means children's exposure to a unit quantity of chemical is greater when normalised to their body volume or weight. With respect to the health effects arising from such higher exposure levels compared to adults; children's metabolic pathways are immature, and their ability to metabolise toxic chemicals differs from adults. While in some cases, this may lead to lower risk than adults because children*

cannot convert chemicals to their toxic forms; children are generally considered more vulnerable because they lack the enzymes needed to break down and remove toxic chemicals.
(Clause 3.4) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1149257/fire-risks-of-uphostered-products-main-report.pdf

All waste furniture is to be incinerated - due to risk of POPs

In January this year, the Environmental Agency declared that all waste upholstered furniture must not go to landfill, but must be incinerated. This is a clear acknowledgement of the health and environmental risks of those flame retardants that are persistent organic pollutants. To continue the practice of treating furniture with chemicals so toxic that at end of life their only route is incineration, goes against our country's aims of reaching net zero.

https://www.gov.uk/guidance/manage-waste-upholstered-domestic-seating-containing-pops

Fire Safety

Fire Safety is important, and is rightly at the forefront of our minds in the aftermath of the Grenfell Tower tragedy. However there is serious doubt that the open flame test (proposed in the new draft regulations) saves lives. The Fire Brigade Union notes that the use of flame retardants to meet the open flame test:

"provides negligible delay to fire ignition".

The Smarter Regulations impact assessment refers to a BIS commissioned report estimating that :

the 1988 Regulations saved 54 lives per year on average between 2002-2007.
https://assets.publishing.service.gov.uk/media/6479e5f15f7bb700127fa3af/fffsrs-consultation-2023-impact-assessment.pdf (clause 3 page 7)

On examining that BIS report (Greenstreet Berman), just 10% of the 54 lives saved are attributed to the "open flame test". The cigarette test (which the report acknowledges saves 50% of the lives saved) is a sensible test, used in the US and EU, it can be met by a tighter weave fabric without the addition of chemical flame retardants and was recommended by the 2019 Environmental Audit Committee.

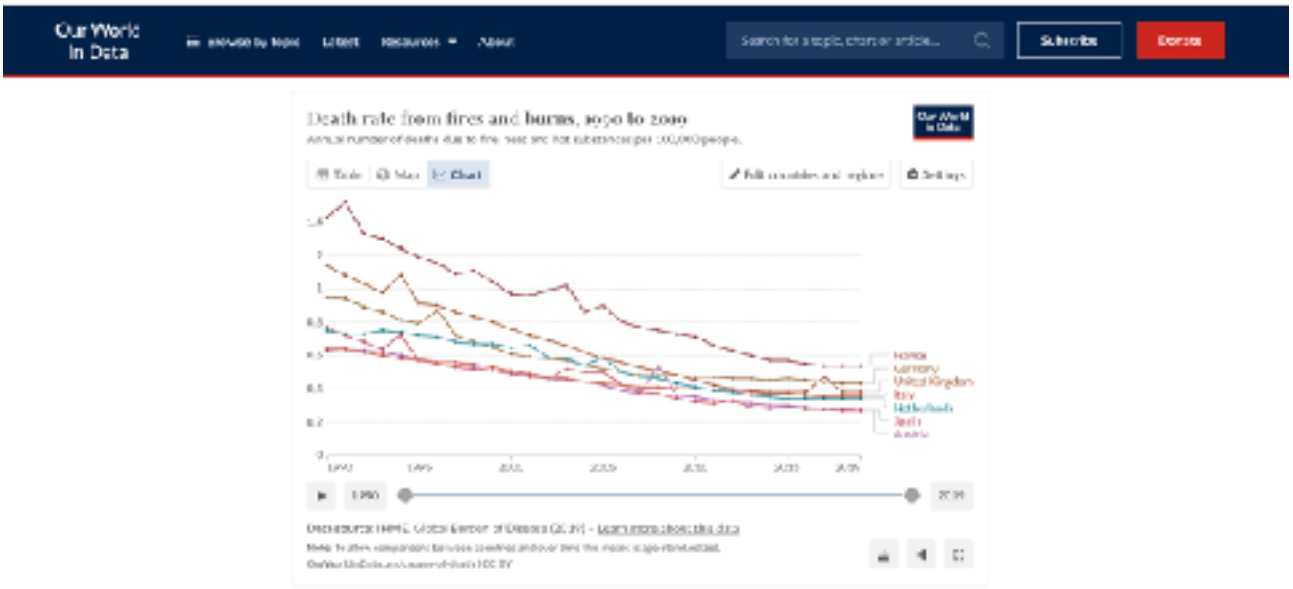
10% of 54 means 5.4 lives saved per year are estimated back in 2000 to be due to the "open flame test".

But 5.4 lives per year is a figure that needs to be reduced by the adjustments to modern day living. Since 2002-2007 (a) overall fatalities have dropped from approx 340 to approx 252 per year; (b) 24% of the country being smokers has dropped to 14% (and smoking is the single largest cause of fire death); (c) smoke alarm ownership has risen from 80% to 94%; (d) more sprinklers are in place; (e) more flats have 2 staircases, (f) compartmentalism has helped reduce fire growth and (g) smokers are more prone to smoke outdoors. Accordingly the 2009 estimate of 5.4 lives saved is likely to have reduced dramatically. It is not clear that chemical flame retardants used in almost 100% of UK upholstered furniture to pass the open flame test lead to any lives being saved. BIS commissioned a report in April 2023 to support the new draft regulations and despite having been given the opportunity, this report is notable in that it did not draw the conclusion that the use of chemical flame retardants saves lives.

We have no evidence that the chemical flame retardants save any lives at all. Yet the open flame test continues. We do not understand.

There are a host of practical fire safety measures recommended in modern fire studies that should be considered. These include - sprinkler systems, regulating cheap chargers that overheat, insulating foam in domestic appliances like tumble dryers from the ignition source, monitoring imports of furniture, public awareness of lithium ion batteries, working with social services to identify the vulnerable members of society most at risk to fire death and sprinkler systems. Notably none of these recommendations includes "keep the open flame test".

https://assets.publishing.service.gov.uk/media/6290d10f8fa8f5039458a8e6/characteristics-of-modern-domestic-fire-scenarios.pdf Main findings page 111



The EU and US

The US in 2013 dropped the open flame test for sofas and moved to a smouldering cigarette test due to the health risks associated with the chemical flame retardants and because they were unconvinced that the chemicals saved any lives.

The EU has never worked with an open flame test and in practice a cigarette test is often used. Yet when their fire statistics are compared to the UK's - we have similar fire fatalities. And these fire deaths are falling for all of us as the number of smokers drop.

The above chart - death rates from fires and burns - shows how comparable the data is in Europe. If chemical flame retardants saved lives you would expect the UK data to be vastly better than that of its neighbouring territories. This is simply not the case. Vitafoam (the UK's largest foam supplier) has confirmed that they only purchase chemical flame retardants for the UK market. In France, Germany and the rest of Europe they can sell foam without toxic flame retardants and whats more in France Germany and the rest of Europe they have recycling facilities to recycle foam at the end of its life. In the UK, the chemical flame retardants leave the foam un-recyclable and destined for incineration.

We recommend

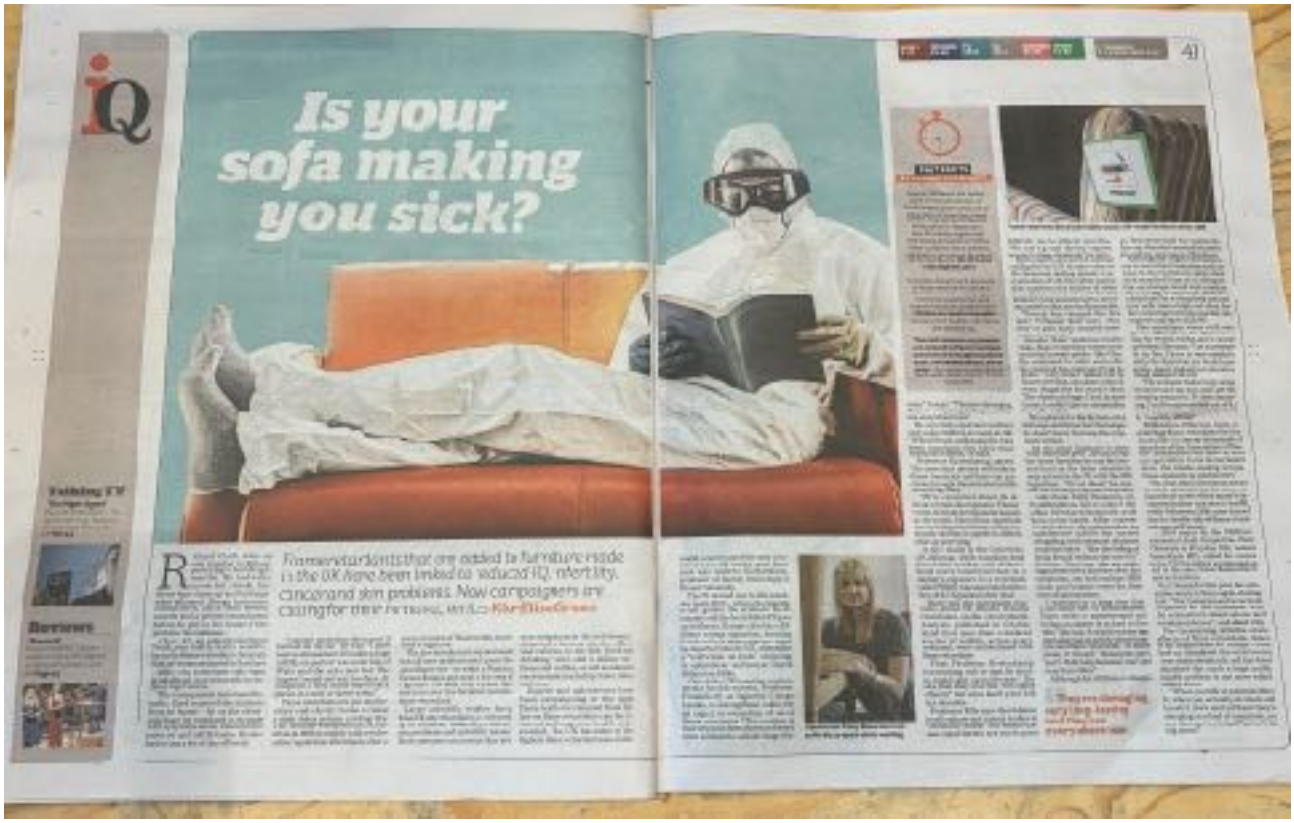
We recommend following the instruction of the Environmental Audit Committee, dropping the open flame test and moving to the US /EU smouldering cigarette test.

We recommend improving fire safety by looking to the reports and statistics and taking the practical measures recommended, protecting the members of society most vulnerable and at risk in an evidentially based targeted approach.

We would like an open constructive discussion with the National Fire Chiefs Council on the best way to improve fire safety, reduce fire fighter cancers and eliminate the use of toxic flame retardants.

Chemical flame retardants present an unacceptable occupational exposure health risk to upholsterers and furniture makers. They present an unacceptable exposure health risk to children in the home and as the chemicals bio-accumulate the magnitude and effect of that exposure will

only be seen in the years ahead. As they burn, the fire and smoke toxicity presents an unacceptable risk of cancer to fire fighters.



We refer you to minutes 14-20 of the attached speech by Professor Andreas Kortenkamp of Brunel University who focuses on the harm to children of exposure to chemical flame retardants (click on the pink Decorex photo below).

Please also see articles in i-news (photographed above), the Daily Star and the Daily Mirror within the last couple of months. The Government is currently reviewing its response to the consultation, we do not have long to act.

Delyth Fetherston-Dilke
February 2024


DECOREX