Flame retardants in furniture: Do we need them?

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Fires that start in furniture decreasing

Home structure fires that began with upholstered furniture

Ahrens NFPA 2011
Furniture fire deaths decreasing

Ahrens NFPA 2011
Furniture fires caused by

Smoldering

Open flame

Furniture fires often start with smoldering:

• Cigarettes
• Electrical sources
Fire safety tools

- Decrease in smoking/fire-safe cigarettes
- Fire-safe candles, child-safe lighters
- Smoke detectors/alarms (new 10 year detectors!)
- Sprinklers
- Work of fire service
- Fire and building codes (CA AB127)
- Fire safety education
- Furniture regulations
  - Smolder standard: TB117-2013
  - Open flame: TB117, TB133, “barrier standard”
Smoking materials cause the most furniture fire deaths

Civilian deaths from home upholstered furniture fires, 1980-2009

Home fires that began with upholstered furniture, NFPA, Ahrens, Aug 2011
Fire death statistics
Which year were UK & Irish regulations introduced?

Data from Arcadis report on Flame Retardants 2011
Fire toxicity

Flame retardants can delay, but do not prevent foam from burning.

When foam does burn, flame retardants can produce or increase...

- soot and smoke
- carbon monoxide, HCN & acid gases
- dioxins and furans

*Depends on the size, location, and duration of the fire!*
Open flame standards protect only a specific range of fires

British standard: severe flammability standard met with flame retardants and/or barriers

*will resist 2 pieces of burning newspaper*

*cannot resist 4 pieces of burning newspaper*
Technical Bulletin 117

- Requires furniture foam to withstand a small open flame for 12 seconds
- No significant fire safety benefit (fires start in exterior fabric not filling)
Fire Safety Benefit of TB117?

Flame retarded foam ~ Plain foam

“No significant, consistent difference...”

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Babrauskas et al 2011; Talley 1995
Health and Fire Safety: Do the Costs and Benefits Make Sense?

More than 300 million Americans have PentaBDE flame retardant in their bodies in an unsuccessful effort to try to prevent an estimated 30 annual small open flame furniture fire deaths. How many firefighters have died from exposure to FRs and combustion byproducts?
Firefighters

- Elevated rates of
  - multiple myeloma
  - non-Hodgkin’s lymphoma
  - prostate and testicular cancer

- associated with dioxin/furan exposure

4000+ articles on PBDEs

Number of Publications

Publication Year


TB 117

Penta BDE Phase-out

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ISI Web of Science
Recent Policy Actions

California Furniture standard TB117-2013
- Smolder standard for cover fabric where fires start
- Increased fire safety
- Flame retardants not needed

California Assembly Bill 127
- Re-evaluates insulation flammability standards for buildings
- Flame retardants should not be required where they provide no fire safety benefit
California Flammability Standard
TB117-2013

- Implemented January 1st, 2014
- Mandatory on January 1st, 2015
- Flame retardants not needed, can still be used
PETITION HP 15-1
to the U.S. Consumer Product Safety Commission

Regarding Products Containing Organohalogen FRs

Declare as “banned hazardous substances” any:
• Children’s products
• Residential furniture
• Mattresses & mattress pads

containing additive, non-polymeric organohalogen FRs

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NFPA 277 would reintroduce an open-flame standard in residential upholstered furniture.

- A new furniture flammability test is not needed.
- NFPA 277 would not significantly improve fire safety, but would harm our health and environment.
- NFPA process lacked transparency & was industry dominated.

If passed, NFPA 277 could bring toxic & unneeded flame retardants back into US furniture!

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