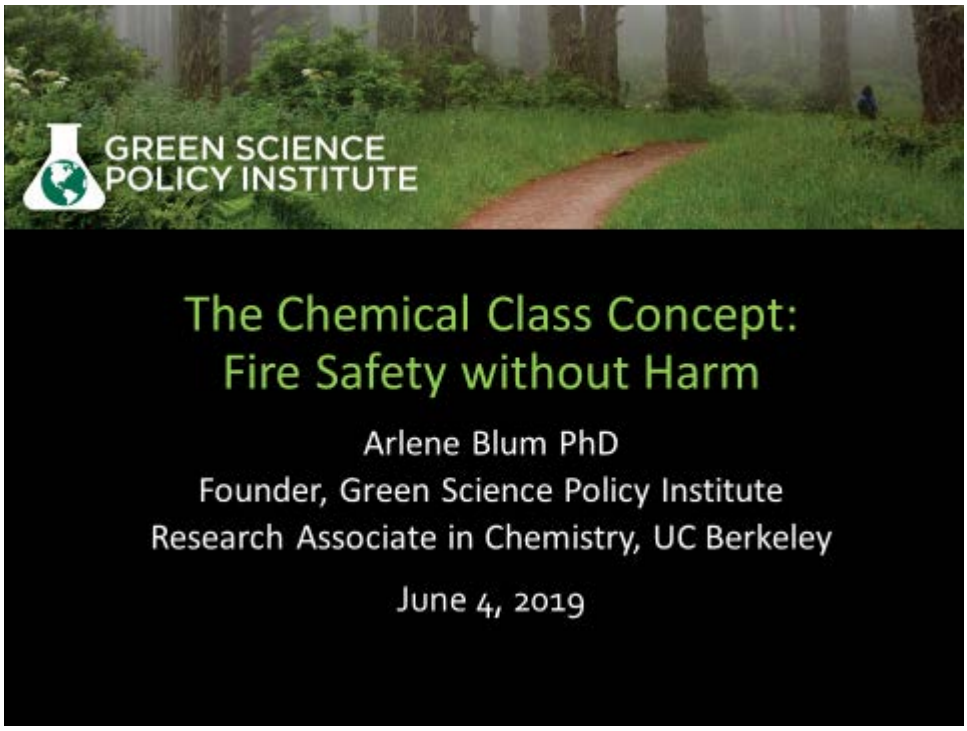
LOG OF MEETING

DATE:	**June 4, 2019**
SUBJECT:	**Chemical hazards**
ATTENDEES:	**Arlene Blum, Green Science Policy Institute** **Mary Gant, Green Science Policy Institute** **Kathryn Rodgers, Silent Spring Institute** **Sean Oberle, Product Safety Letter** **Lane Hochschwender, American Chemistry Council**
CPSC ATTENDEES:	**Commissioner Kaye, J. Fong-Swamidoss, A. Steinle, J. Midgett**
SUMMARY:	**Participants discussed the toxicology of hazards associated with flame retardants, highly fluorinated chemicals and other hazardous chemical classes and potential policy responses to address them. Slides below.**
LOG AUTHOR:	**J. Midgett**
LOG CREATION DATE:	**June 4, 2019**



U.S. Toxic Substances Control Act (1976)

- 62,000 previous chemicals "grandfathered"
- 23,000 new chemicals
  - 85% have no health data
  - 67% have no data at all

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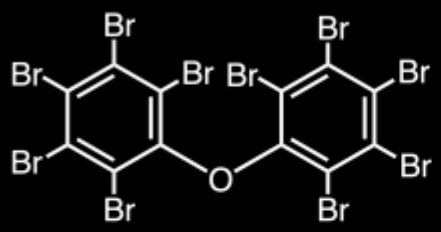
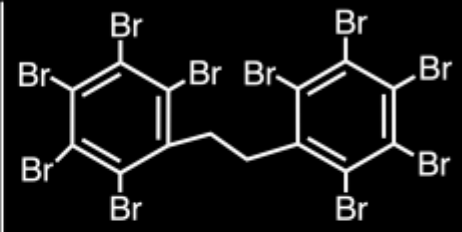
Regrettable Substitution



Decabromodiphenyl ether

Concerns:

- Persistence
- Bioaccumulation
- Toxicity



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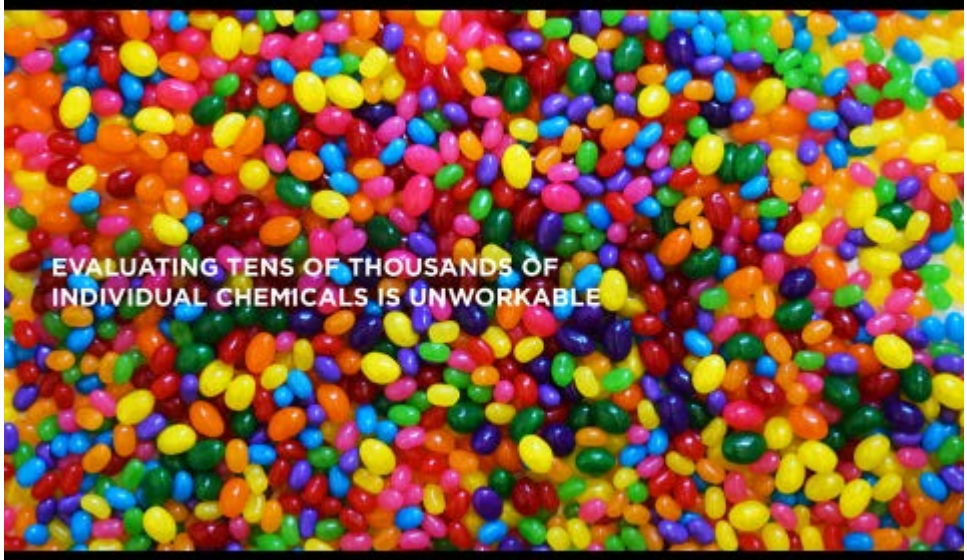

BUT ADDRESSING SIX GROUPS OF
CHEMICALS OF CONCERN IS MANAGEABLE
Six Classes Videos
An innovative approach to reducing toxics
1
Highly Fluorinated
2
Antimicrobials
3
Flame Retardants
4
Bisphenols + Phthalates
5
Some Solvents
6
Certain Metals
VIEW and SHARE: www.SixClasses.org
Healthier products, healthier people in four minutes!

Six Classes Videos

An innovative approach to reducing toxics

1	2	3	4	5	6
Highly Fluorinated	Antimicrobials	Flame Retardants	Bisphenols + Phthalates	Some Solvents	Certain Metals

VIEW and SHARE: www.SixClasses.org

Healthier products, healthier people in four minutes!

Is it necessary?

Is it worth it?

Is there a safer alternative?

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Class 3 Flame retardants

Updating 1970s Flammability Standards

- Children's sleepwear --1977
- Furniture and baby product foam --2014
- Electronics enclosures-- ?

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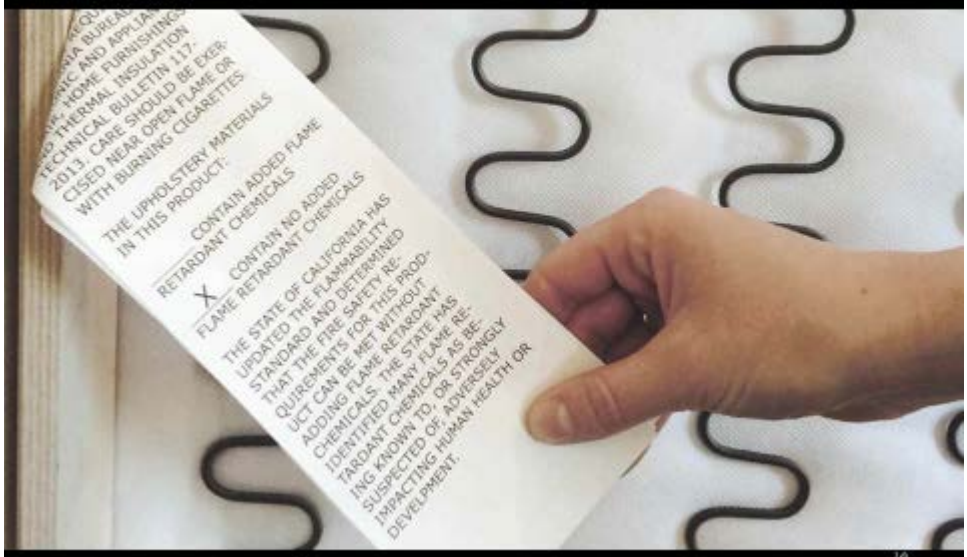
TRIS-Treated Children's Garments Banned

April , 1977

Chlorinated Tris replaced Brominated Tris

- Removed from pajamas in 1978
- Used in furniture until 2012

California TB117-2013



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PETITION: U.S. Consumer Product Safety Commission

Products Containing Organohalogen Flame Retardants

GRANTED – 20 September 2017

Declare as "banned hazardous substances":

- Children's products
- Residential furniture
- Mattresses & mattress pads
- Plastic electronics enclosures

containing additive, non-polymeric organohalogen FRs

CPSC Organohalogen Petition Hearing 2017

3-minute-long video excerpts

GreenSciencePolicy.org/CPSCPetition

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City of San Francisco
Upholstered Furniture & Children's Products

NO
Flame Retardants

(courtesy Jen Jackson)

California Bans Flame Retardants

in furniture, children's products & mattress foam

Signed September 30, 2018

"Toxic flame retardant chemicals have put consumers, children, and firefighters at risk for decades. Today we say no more."

-AB 2998, Sponsor: Assemblyman Bloom

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Repeal of Technical Bulletin 133

- TB133 required open-flame testing of upholstered furniture in high occupancy public spaces (offices, hotels)
- Limited fire safety benefit
- High levels of flame retardants needed
- Repealed January 2019

UK Parliamentary Inquiry on Toxic Chemicals

- February –May 2019: House of Commons Environmental Audit Committee inquiry on toxic chemicals
- "Focus on how toxic chemicals are used in furniture, food and toys, current government regulation…and environmental and human health problems."
- May change the *Furniture and Furnishings Fire Safety Regulations*

www.parliament.uk

8. Are the Furniture and Furnishings (Fire Safety) Regulations 1988 (as amended in 1989, 1993 and 2010) fit for purpose? If not, which aspects should be updated?

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Open flame standards protect a specific range of fires to meet a test

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

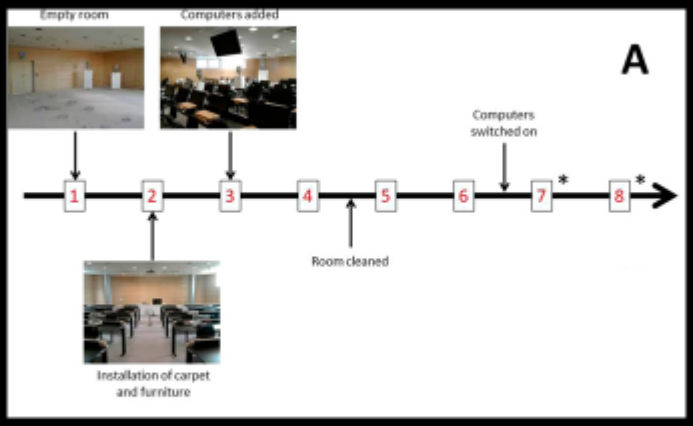
will resist 2 pieces of burning newspaper

cannot resist 4 pieces of burning newspaper

Crewe 2013

Flame Retardants in Electronics

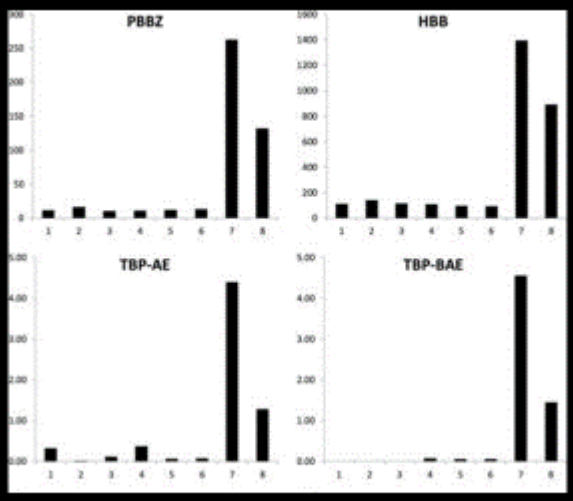
Increased FRs from Electronics in Use



Czech Republic study of air samples in a newly built class room at 8 points in time, measuring flame retardants.

Source: Vojta et al, "Changes in Flame Retardant and Legacy Contaminant Concentrations in Indoor Air during Building Construction, Furnishing, and Use," 2017 https://pubs.acs.org/doi/10.1021/acs.est.7b03245

Increased FRs from Electronics in Use



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https://pubs.acs.org/doi/10.1021/acs.est.7b03245

Recycling Flame Retarded Plastics

Flame Retardants in Kitchen Utensils

- Black plastic often contains BFRs
- BFRs found in 34% of tested utensils
- Up to 20% of BFRs transferred to hot cooking oil

Kuang *et al.*, Science of the Total Environment, 2018

EU Ban on Flame Retardants in Electronics Cases

- Ecodesign directive bans all organohalogen flame retardants
  - For cases and stands of electronic displays and TVs
  - Unanimously approved by 24 member states on December 19, 2018
  - Starting in 2021
  - Justification is need for plastic recycling in the Circular Economy

EUROPEAN COMMISSION

Brussels, XXX
D65974/02
[...](2019) XXX draft

COMMISSION REGULATION (EU) .../...

of XXX

laying down ecodesign requirements for electronic displays pursuant to Directive 2009/125/EC of the European Parliament and of the Council, amending Commission Regulation (EC) No 1275/2008

4. Halogenated flame retardants

The use of halogenated flame retardants is not allowed in the enclosure and stand of electronic displays.

Fire safety tools

- Decrease in smoking/ fire-safe cigarettes
- Fire-safe candles, child-safe lighters
- Photoelectric smoke detectors/ alarms
- Sprinklers
- Work of fire service
- Fire codes
- Fire safety education
- Furniture regulations
  - Smolder standard: TB117-2013
  - Open flame, "barrier standard"

(Only open flame standards have potential for harm)

Robert Redford, Fernando Valenzuela, Ann Gust Brown, Jerry Brown, Arlene Blum, Thomas Keller, Ed Lee's daughter, Belva Davis, & Joan Baez.

Risks from upholstered furniture fires in Massachusetts (2003-2016)[1]

Kathryn Rodgers, MPH
Silent Spring Institute

[redacted]

[1]Rodgers KM, Swetschinski LP, Dodson RE, Alpert HR, Fleming JM, Rudel RA. 2019. Health toll from open flame and cigarette-started fires on flame retardant furniture in Massachusetts, 2003-2016 (in press). Am J Public Health.

Study objectives

1. Use MFIRS data (93% reporting rate by Massachusetts fire departments) to evaluate the risk of casualties with fires that started with upholstered furniture, as a state case study.
2. Examine the role of heat source – specifically open flame and smoking materials – in furniture fire casualties.

Methods

- Analyzed 34,081 MFIRS records from 2003-2016
  - Eliminated 124,781 residential structure fires that were arson, non-residential, in vacant buildings, non-enclosed buildings, mobile homes, or confined
- 1. Calculated odds of death, severe casualty, and casualty for 12 risk factors (*area of origin*, *human factors* (e.g. impaired, disabled), *smoke detector operation*, *fire spread*, *property use*, *equipment involved in ignition*, *season*, *time of day*, *fire year*, and *urbanicity*).
- 2. Calculated odds of death, severe casualty, and casualty for interaction between heat source and upholstered furniture as item first ignited.

Odds of death and casualty for selected fire risk factors

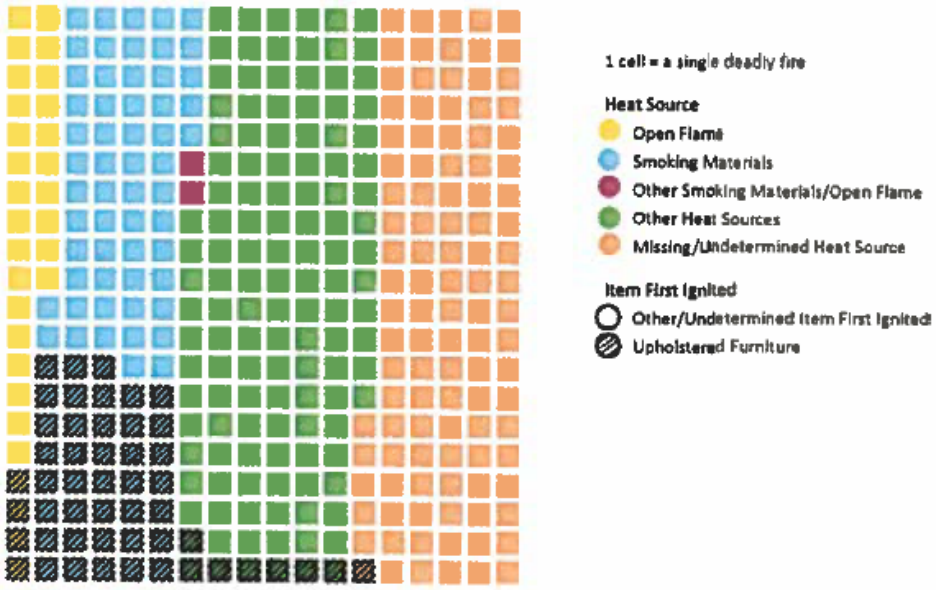
Parameter		Death	Severe Casualty	Casualty
		Odds Ratio 95% CI	Odds Ratio 95% CI	Odds Ratio 95% CI
Item First Ignited				
	Other IFI	Ref.	Ref.	Ref.
	Upholstered furniture	4.38 (3.2, 5.98)	3.64 (2.79, 4.76)	1.93 (1.61, 2.33)
	Missing/undetermined IFI	2.25 (1.73, 2.92)	1.96 (1.59, 2.42)	1.25 (1.12, 1.41)
Heat Source				
	Other heat source	Ref.	Ref.	Ref.
	Open flame	3.28 (2.21, 4.86)	2.12 (1.58, 2.84)	1.79 (1.56, 2.05)
	Smoking materials	9.15 (6.62, 12.64)	4.33 (3.38, 5.53)	1.77 (1.54, 2.03)
	Other smoking materials or open flame	0.43 (0.13, 1.4)	0.71 (0.37, 1.35)	1.37 (1.1, 1.69)
	Missing/undetermined	2.58 (1.86, 3.58)	2.02 (1.58, 2.59)	1.39 (1.22, 1.58)

Odds of death and casualty for interaction between upholstered furniture and heat source

Item First Ignited	Heat Source	Death	Severe Casualty	Casualty
		Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)
Upholstered furniture	Open flame	Ref.	Ref.	Ref.
	Smoking materials	3.40 (1.34, 10.94) **	2.68 (1.18, 7.09) *	1.67 (0.90, 3.29)
	Other smoking materials or open flame	0.46 (0, 4.75)	0.31 (0, 2.88)	1.96 (0.58, 6.0)
	Other heat source	0.43 (0.13, 1.58)	0.61 (0.23, 1.79)	0.74 (0.37, 1.52)
	Missing/undetermined	0.37 (0.04, 2.08)	0.59 (0.14, 2.20)	0.65 (0.26, 1.56)

Regression controlled for human factors (e.g. impaired, disabled), area fire originated in, equipment involved in ignition, season, time of day, and fire year.

Residential fire fatalities by heat source and item first ignited



Upshot

- Furniture flammability standards that target open flames and rely on flame retardant chemicals:
  a) aren't targeting the most dangerous fires
  b) lead to widespread exposures to toxic flame retardants unnecessarily
- Data from Massachusetts shows furniture fires started by smoking materials are more frequent and dangerous than those started by open flames.
- 2012-2014 CPSC data shows nationally, 41% of upholstered furniture fire fatalities were in fires ignited by smoking materials, while 4.5% were ignited by open flames (Miller, 2017).