

Kathy Curtis

Policy Director, Clean New York

*PBDE Strategic Collaboration Campaign
Coordinator, Environmental Health Fund*

A Growing Trend

GOVERNMENT ACTION ON DecaBDE

NGO PBDE COLLABORATION

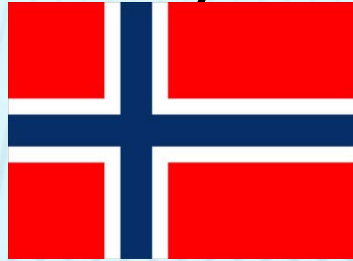
- × Leaders from more than ten states
- × Communicate via conference calls, listserve, website, annual meeting
- × Share materials, messaging, research, contacts, strategy, industry trends
- × Includes:
 - + technical experts (CPA, HBN)
 - + market campaigns (ETBC, HCWH)
 - + advocates from EU and elsewhere
 - + scientific/medical/academic experts

DecaBDE RESTRICTIONS

Sweden



Norway



Washington State



European Union



Maine



SWEDEN

- **DecaBDE restriction came into effect on January 1, 2007**
- **Applies to all articles except:**
 - + electrical and electronic products already covered under Directive 2005/95/EC (RoHS)
 - + vehicles as defined in the Act (2001:559) on Road Traffic Definitions.



NORWAY

- ✖ Existing ban on deca-BDE in electronic and electrical products
- ✖ Will now be extended to textiles, furniture filling and cables, effective April 1, 2008
- ✖ Leaves transport sector as only exemption



EUROPEAN UNION

BAN DUE TO NONA-BDE IN COMMERCIAL MIXTURES



EUROPEAN COMMISSION
DIRECTORATE-GENERAL
ENVIRONMENT
Directorate G - Sustainable Development and Integration
ENV.G.4 - Sustainable Production & Consumption

Brussels, 21 JUN 2006
KvdH/jh D(2006) 12139

Subject: Scope of the exemption provided by item "DecaBDE in polymeric applications" in the Annex to Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Homogenous materials containing above 0.1% by weight of nonaBDE ... do not comply with the provisions of the Directive.

emphasis added



WASHINGTON STATE

- × 2004 – DoE and DoH issue PBDE action plan, recommends development of proposal to ban deca
- × 2007 – Washington passes ESHB 1024, a ban on deca in certain products

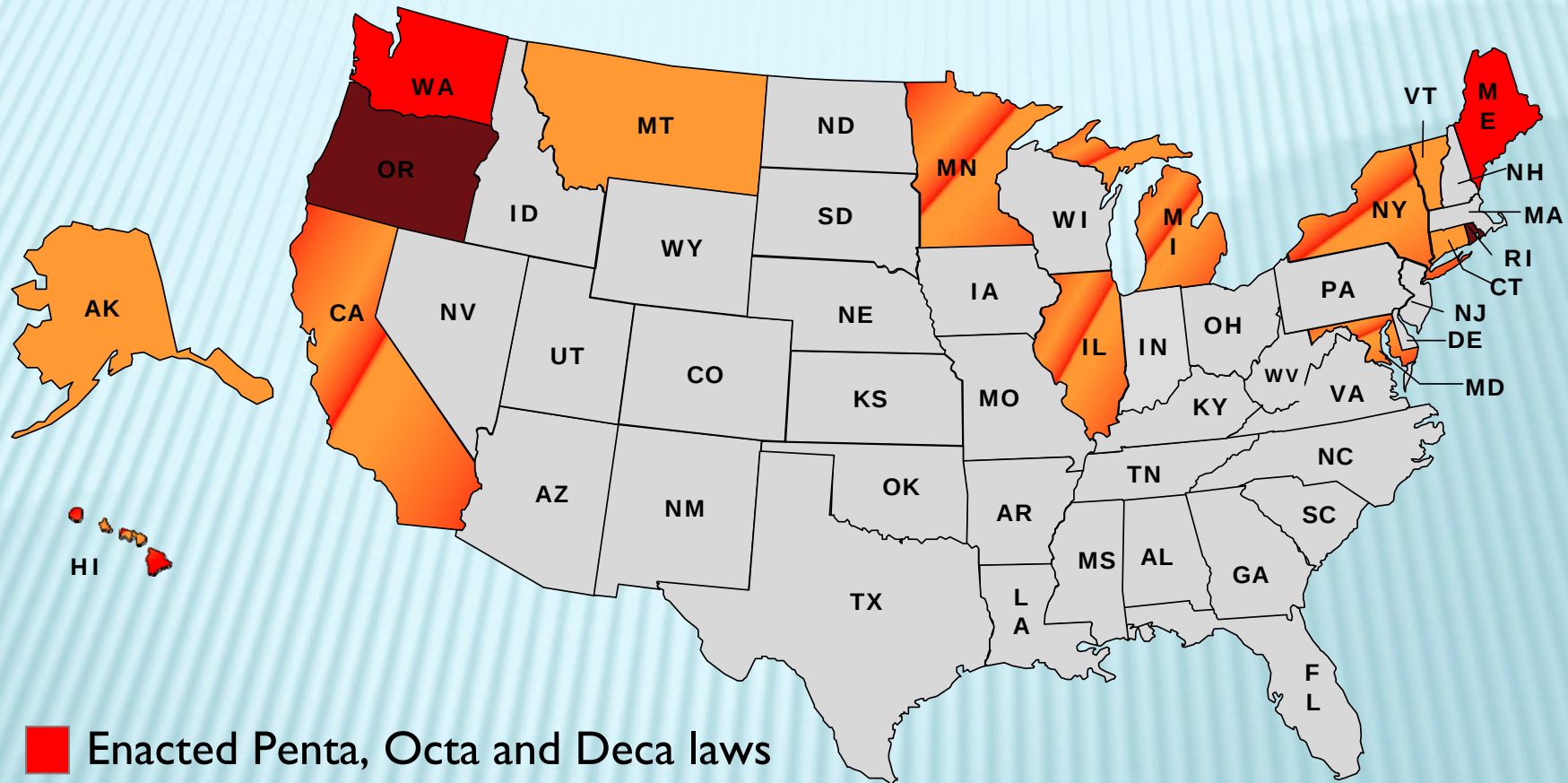


MAINE

- × 2005 – Report from Bureau of Health and Department of Environmental Protection recommends deca ban
- × 2007 – LD 1658 passes, bans deca
 - + In mattresses & upholstery – January 2008
 - + In TVs & computer enclosures in 2010
- × Requires ongoing reporting of deca use, continued evaluation of safer flame retardants
- × Authorizes participation in multi-state safer flame retardants clearinghouse



STATE ACTION ON PBDES



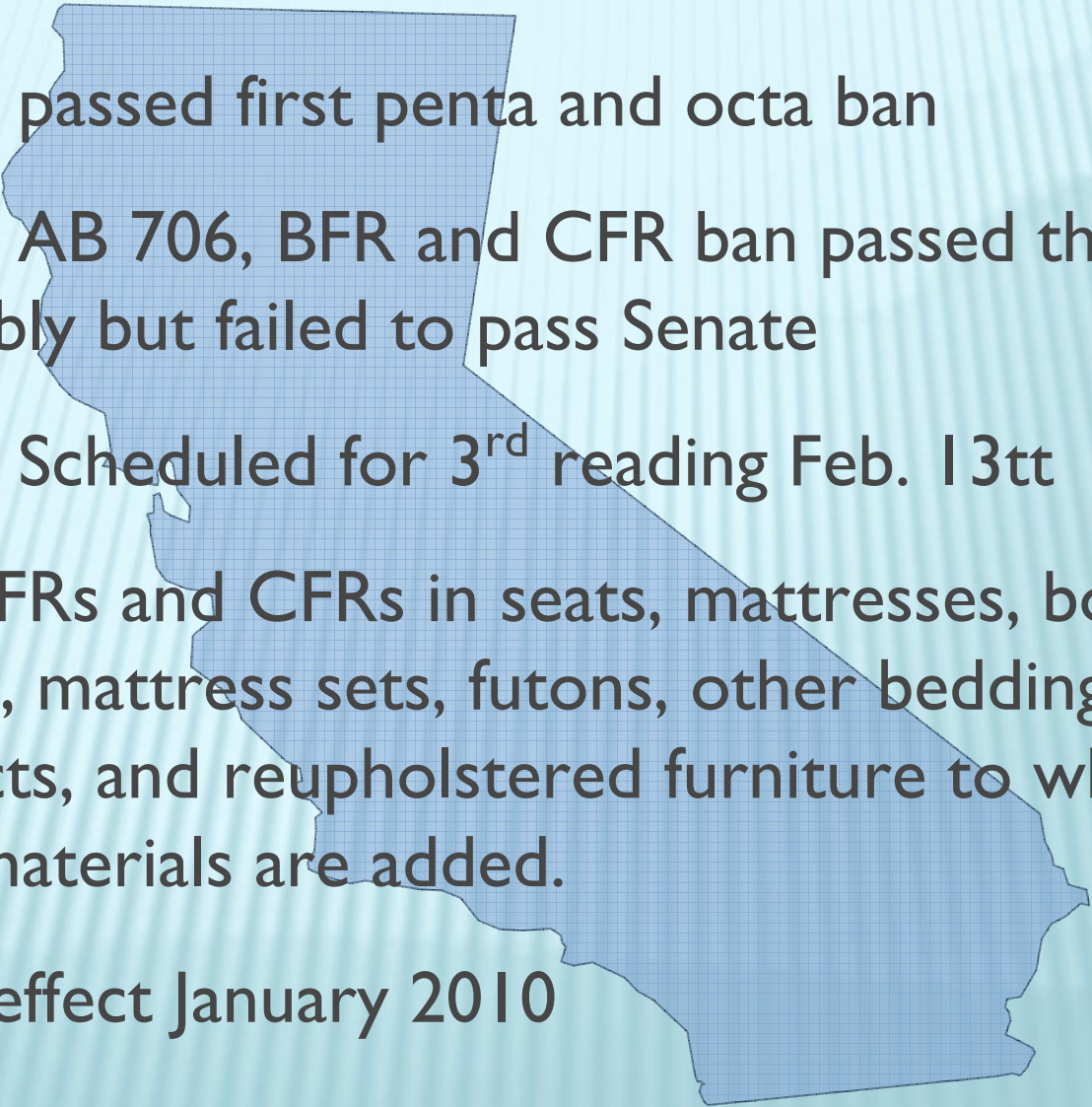
- Enacted Penta, Octa and Deca laws
- Proposed PBDE laws
- Deca law proposed, penta & octa enacted
- Enacted Penta and Octa laws

*Thanks to Daryl Ditz at
CIEL for this map*

ALASKA

- 
- × HB217 by Rep. Andrea Doll
 - × One-house bill, seeking Senate sponsor
 - × Bans Penta- and Octa-BDE
 - × Prohibits manufacture sale or distribution of mattresses pads or upholstery containing deca
 - × Prohibits deca in plastic housing of electronic products
 - × Requires DEC to generate a list of PBTs

CALIFORNIA

- 
- × 2003 – passed first penta and octa ban
 - × 2007 – AB 706, BFR and CFR ban passed the CA Assembly but failed to pass Senate
 - × 2008 – Scheduled for 3rd reading Feb. 13th
 - × Bans BFRs and CFRs in seats, mattresses, box springs, mattress sets, futons, other bedding products, and reupholstered furniture to which filling materials are added.
 - × Takes effect January 2010

CONNECTICUT

- ✖ Governor Jodi Rell (R) introduced PBDE bill based on the ME model
- ✖ bans deca in mattresses & upholstery, TVs & computer enclosures
- ✖ Requires ongoing reporting of deca use, continued evaluation of safer flame retardants
- ✖ Authorizes participation in multi-state safer flame retardants clearinghouse

HAWAII

- × 2004 – HB 2013 restricted manufacture and distribution of penta and octaBDE.
- × Took effect Jan. 1st, 2006
- × 2007 -- H.B. NO. 461 bans deca in TV & computer enclosures, mattresses, mattress pads, home furniture & textiles
- × Takes effect July 1st, 2010
- × Includes regular reporting requirements

ILLINOIS

- × 2006 – IL EPA issues deca report re: alternatives
– Governor requested follow-up
- × 2007 – report found: deca ‘debrominates’,
causes illness, and alternatives are available,
recommends deca-BDE phaseout
- × 2007 – HB 1421 (Nekritz) bans deca-BDE in TV,
computer & electronic casings mattresses &
pads, indoor home textiles
- × Effective date: January 2011

MARYLAND

- × House Bill 83 passed in 2005
- × Requires DoE report to legislature on bfr use, human and environmental impact, recommendations on disposal restrictions and other public health protection
- × Bans penta and octa on Oct. 1 2008
- × Exempts used and recycled materials
- × HBI of 2008 would simply incorporate deca into the bans on penta and octa.

MICHIGAN

- 
- ✖ MDEQ draft study on deca recommended a ban on deca where safer alternatives exist.
 - ✖ 2006 – Penta and octa ban goes into effect
 - ✖ 2007 – Pending bill to ban deca in residential mattresses and upholstered furniture in 2008 and TV/Computers in 2011

MINNESOTA

- 
- ✖ 2007 – penta- and octa-BDE ban passes
 - + PBDE-free state purchasing
 - + January 2008 report to legislature from MN Pollution Control Agency.
 - ✖ 2008 – Seeking deca-BDE ban in TV & computer enclosures, mattresses, mattress pads, residential furniture and textiles ban
 - ✖ Would take effect in 2010
 - ✖ Authorizes participation in a multi-state clearinghouse
 - ✖ RTP Chemical makes polymers, uses both deca & non-halogenated flame retardants.

MONTANA

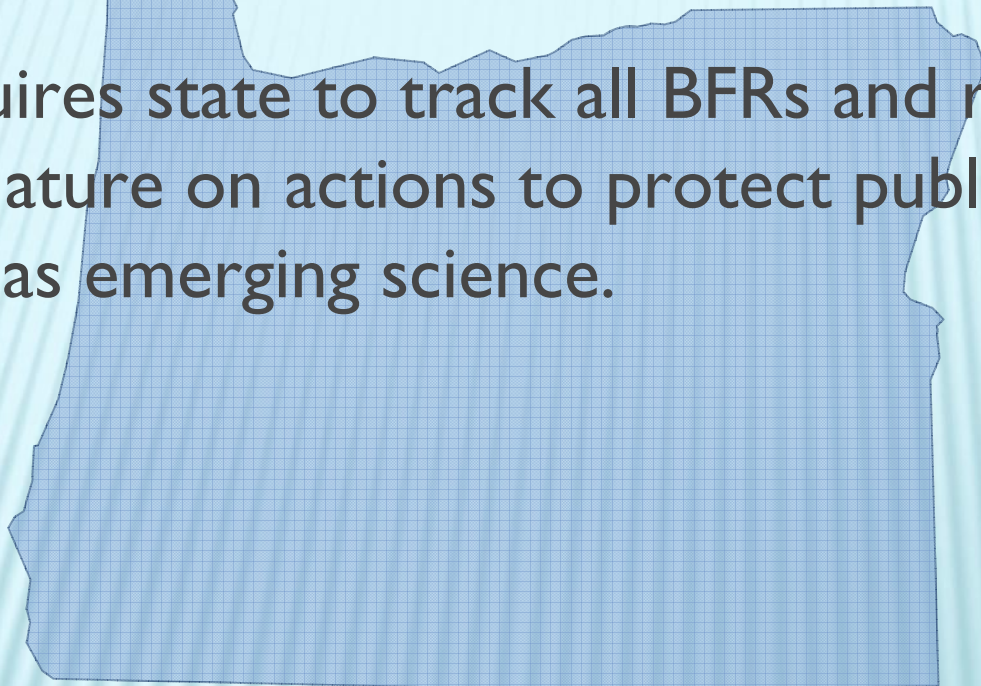
- × 2005 – PBDE resolution – did not pass
- × 2007 – deca ban in mattresses, and TVs, computers if safer alternatives are available
- × Provides for ongoing agency review and reportage
- × Did not pass, Session runs every other year
- × 2009 – Next session, plan to revitalize

NEW YORK

- 
- × 2004 – Penta- and Octa-BDE ban passes
 - × 2007 – Two-house deca in products ban passed Assembly
 - × Incorporated into Green Procurement EO
 - × 2008 – 7977-B poised to re-pass Assembly, be reconsidered in Senate
 - × Deca Alternatives Taskforce in formation

OREGON

- ✖ 2005: penta and octaBDE ban
- ✖ Requires state to track all BFRs and report to legislature on actions to protect public health, as well as emerging science.



RHODE ISLAND

- × 2006 – HB 7917-A Enacted penta- and octaBDE ban
- × Required study of decaBDE
- × Report back to the Legislature was due January 2007

VERMONT

- × 2008 – HB589 SB260
 - × Beginning July 2009 – Covers any product containing Octa or Penta
 - × By July 2009 – Removes Deca from mattresses, upholstered furniture
 - × By July 2011 – Removes Deca from computers, TVs with plastic housings
 - × Authorizes participation in substitution clearinghouse
- 

GOVERNMENT REPORTS CONFIRM SAFER ALTERNATIVES ARE AVAILABLE

Maine DEP and CDC

- ✦ **Findings:** Safer alternatives are available for TV cabinets and textiles, the applications that consume most decaBDE.
- ✦ **Conclusions:**
 - + The Legislature should ban the sale of televisions and other consumer electronics that have plastic casings containing decaBDE by January 1, 2012
 - + To prevent decaBDE use to meet new and pending national flammability standards, the Legislature should ban the sale of these products if they contain decaBDE.



GOVERNMENT REPORTS CONFIRM SAFER ALTERNATIVES ARE AVAILABLE

Illinois EPA

Findings: Evidence continues to accumulate that DecaBDE can be broken down by light and organisms under certain conditions

- ✖ DecaBDE, certain DecaBDE breakdown products, and other PBDEs can cause thyroid, reproductive/developmental, and neurological effects

Conclusions: Establish a realistic target, possibly by year-end 2010, for the phase-out of DecaBDE

- ✖ Explore creation of clearinghouse among state agencies as a central repository for information regarding flame retardants that can be made available to interested parties.

micr



MARKET REACTION

- × Safer, cost- and performance-effective flame retardant solutions are in widespread use
- × Product manufacturers are switching to safer flame retardants for their electronics and furnishings
- × Manufacturers that make PBDEs also make other, safer flame retardants

SAFER, AFFORDABLE FLAME RETARDANTS

Product	Alternatives Available?	Cost-Competitive?	Safer Alternatives Available?
Electronic housings	Yes	Yes	Yes
Furniture applications	Yes	Yes	Yes

Washington State estimates that
“about 57% of TVs and 95% of computer products are PBDE-free”

COSTS OF TV ALTERNATIVES

Flame Retardant	Resin Cost – average ¹ TV front & rear	Resin cost as % of \$300 TV
DecaBDE	\$11.21	3.7%
Other BFRs	\$14.55	4.9%
Bisphenol A diphosphate or RDP	\$18.18	6.1%
Phosphate esters	\$22.00	7.3%
RDP	\$23.03	7.7%

¹Average TVs: 27.5” unit, \$300

Source: LCSP,
2005

Progress towards PVC^[1] and BFR^[2] elimination by leading electronic manufacturers selling in the US

Manufacturers	DecaBDE* free product available	Goal of partial BFR and PVC elimination	Goal of BFR elimination for new products	Goal of PVC elimination for new products
Apple ^[3]	✓	✓	by end of 2008	by end of 2008
Dell ^[4]	✓	✓	by 2009	by 2009
Lenovo ^[5]	✓	✓	by 2009	by 2009
Toshiba Personal Computing ^[6]	✓	✓	by 2009	by 2009
Acer ^[7]	X	✓	by 2009	by 2009
Sony ^[8]	✓	✓	by 2010	by 2010
LG Electronics ^[9]	✓	✓	by 2010	by 2010
Samsung ^[10]	✓	✓	by 2010	by 2010
Sharp ^[11]	✓	✓	by 2010	by 2010
Phillips ^[12]	✓	✓	by 2012	by 2012
Hewlett Packard ^[13]	✓	by 2009 for comp. prod.	X	X
Panasonic ^[14]	✓	by 2011 for PVC-free wiring and BFR -free comp. & mobile phones	X	X

Key: X means no publicly available data found on website and ✓ means goal has been set or accomplished *Some products still might contain trace amounts of decaBDE due to the use of recycled plastics. Data from Feb. 2007.

BSEF MEMBERS MAKE PHOSPHATE FRs

Chemtura (formerly Great Lakes Chemical)

Manufactures phosphorous-based flame retardants for TV housings (www.e1.greatlakes.com)

They say:

“**Reofos RDP** is recommended for use in modified polyphenylene oxide (mPPO), polycarbonate/ABS blends and polyurethane foams. **Reofos RDP** provides the following performance advantages:

- High phosphorus content
- High molecular weight and low volatility
- Reduced plasticization”

(www.e1.greatlakes.com/freb/common/pdf/Reofos_RDP_ds.pdf)

BSEF MEMBERS MAKE PHOSPHATE FRs

Albemarle Corporation

Manufactures phosphorous flame retardant for TV housings

They say:

“Phosphate based FR's work efficiently in [Thermoplastic alloys] and give good physical properties and good UV stability” (link from Albemarle webpage: www.specialchem4polymers.com/tc/phosphorus-flame-retardants/index.aspx)

“NcendX® P-30 liquid phosphorus (nonhalogen) flame retardant is an outstanding performer in PC/ABS and PPE/HIPS blends. It actually improves resin melt flow and exhibits outstanding thermal stability, excellent hydrolytic stability, low migration and low volatility.”

(www.albemarle.com/Products_and_services/Polymer_additives/Flame_retardants/Markets/Electronic_enclosures/)

ALBEMARLE TO COMPLY WITH EU

Albemarle Introduces Higher Purity Deca-bromodiphenyl Ether Flame Retardant, SAYTEX(R) 102HP

This new product is designed to help Albemarle customers and their downstream users *meet the* strictest interpretation of the ***European Union (EU) Restriction on the Use of Hazardous Substances (RoHS) Directive*** and related EU Commission Decisions regarding the use of polybrominated diphenyl ethers, or PBDEs.

http://www.albemarle.com/Products_and_services/Polymer_additives/?news=text&releaseID=952675

[emphasis added]



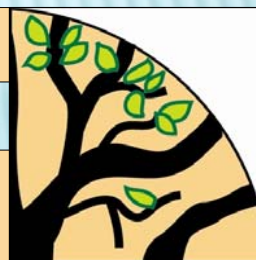
Benchmark 4

Prefer – Safer Chemical



Benchmark 3

**Use but Still Opportunity
for Improvement**



Benchmark 2

**Use but Search for Safer
Substitutes**



Benchmark 1

**Avoid – Chemical of
High Concern**



GREEN SCREEN: COMPARISON OF DecaBDE & RDP

Chemical	Reasons for Benchmark	Benchmark Achieved
DecaBDE and its breakdown products	Issues with breakdown products • OctaBDE = vPT • Other lower brominated congeners with P, B and T characteristics	Benchmark 1: Avoid - Chemical of High Concern
RDP and its breakdown products	RDP constituents or breakdown products are not a PBT, vPvB, vPT, or vBT	Benchmark 2: Use but Search for Safer Substitutes

DECA-FREE MATTRESS CHOICES

Mattress Alternatives

Fabric backcoating with phosphate

Cotton padding treated with boric acid

Inherently flame resistant materials used as **fire barriers** – aramides, melamine, glass fibers, etc.

Mattress Notes

Halogen-free alts are common & often labeled

**Preferred alt of manufacturers:
inherently flame resistant barriers**

Sources: LCSP, 2005; WA Dept of Ecology, 2006

Top 15 US Bedding Manufacturers – 2004

Rank	Company	PBDE?
1	Sealy	No
2	Simmons	No
3	Serta	No
4	Spring Air	<i>None applied at assembly factory</i>
5	Tempur-Pedic	No
6	Select Comfort	No
7	King Koil	No
8	Therapedic	<i>None applied at assembly factory</i>
9	Kingsdown	No
10	Englander	No
11	Int'l Bedding Corp	No
12	Restonic	No
13	Symbol	<i>Didn't know the answer</i>
14	Corsicana	No
15	Lady Americana	No

**60% of
U.S.
Market**

FURNITURE WITHOUT DECA

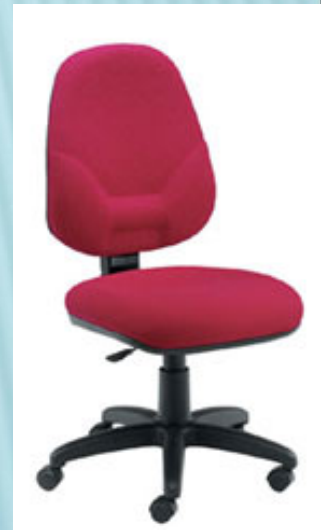
Upholstered Furniture Alternatives

Textile backings coated with phosphate material

Inherently flame resistant materials used as fire barrier

Furniture Notes

Very few manufacturers label their products as BFR-free



Source: LCSP, 2005

DRAPES WITHOUT DECA

Drapery Alternatives

Natural fibers (wool, cotton, linen) or natural/synthetic blends treated with phosphates

Inherently flame resistant materials or polymers w/phosphates



Drapery Notes

Natural/synthetic fiber blends are common

Source: LCSP, 2009

Higher % natural = better treatment results

BEWARE OF BAD AMENDMENTS

Do not add the following:

- ✖ Requirements for agency rule-making before the Deca ban goes into effect
- ✖ A narrow definition of “safer alternative” that makes it virtually impossible to implement ban.
- ✖ Requirements for the State Fire Marshal to adopt state fire safety standards

These rule-making requirements would have a negative fiscal impact on state government and contribute to budget crises faced by many states.

CONCLUSION

- × Common threads –
 - + Government reports prove availability of alternatives, recommend substitution
 - + Environmental advocacy/firefighter/health affected support is important
 - + Opposition largely restricted to out-of-state chemical industry
- × Momentum exists – implementation is key
- × Tells our story about need for broad reform
- × 2008-2009 more states may come on line