

Balancing the equations on flame retardants: regulations, health, fire safety



Donald Lucas, Ph.D.
Lawrence Berkeley National Laboratory
School of Public Health, UC Berkeley
Green Science Policy Institute

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Flame retardants are used to meet flammability standards

- 1972 Flammability standard for baby pajamas
(Consumer Product Safety Commission regulation)
- 1973 Furniture flammability standard TB117
(Standard mandated by California legislation)
- 1976 Uniform Building Code for foam plastics insulation (Private code body)

Brominated Tris Flame Retardant

Tris (2,3-dibromopropyl) phosphate

- In children's sleepwear 1975 to 1977
- Up to 10% of the weight of fabric
- In children's urine
- Mutagen and possible carcinogen





**U.S. Consumer Product
Safety Commission**

CPSC Bans TRIS-Treated Children's Garments

FOR IMMEDIATE RELEASE

April 7, 1977

Chlorinated Tris replaced Brominated Tris

- Removed from pajamas in 1978
- Used in furniture, baby products etc. until 2012



Why are flame retardants in furniture & baby products?

California Technical Bulletin 117:

- Requires filling inside furniture to withstand a small open flame for 12 seconds
- No fire safety benefit
(fires start in fabric covers, not in fillings)

Firefighters



- Elevated rates of
 - multiple myeloma,
 - non-Hodgkin's lymphoma,
 - prostate and testicular cancer
- Associated with dioxin/furan exposure.

G.K. LeMasters, et al, Journal of Occupational and Environmental Medicine 48(11): 1189-202(2006).

Animal health effects

- Chronic toxicity: long term impacts
 - Endocrine disruption: Interference with thyroid hormone action
 - Neurodevelopment: Decreased memory, learning deficits, altered motor behavior, hyperactivity
 - Reproductive system effects: Abnormal gonadal development, reduced ovarian follicles, reduced sperm count
 - Immune suppression
 - Cancer

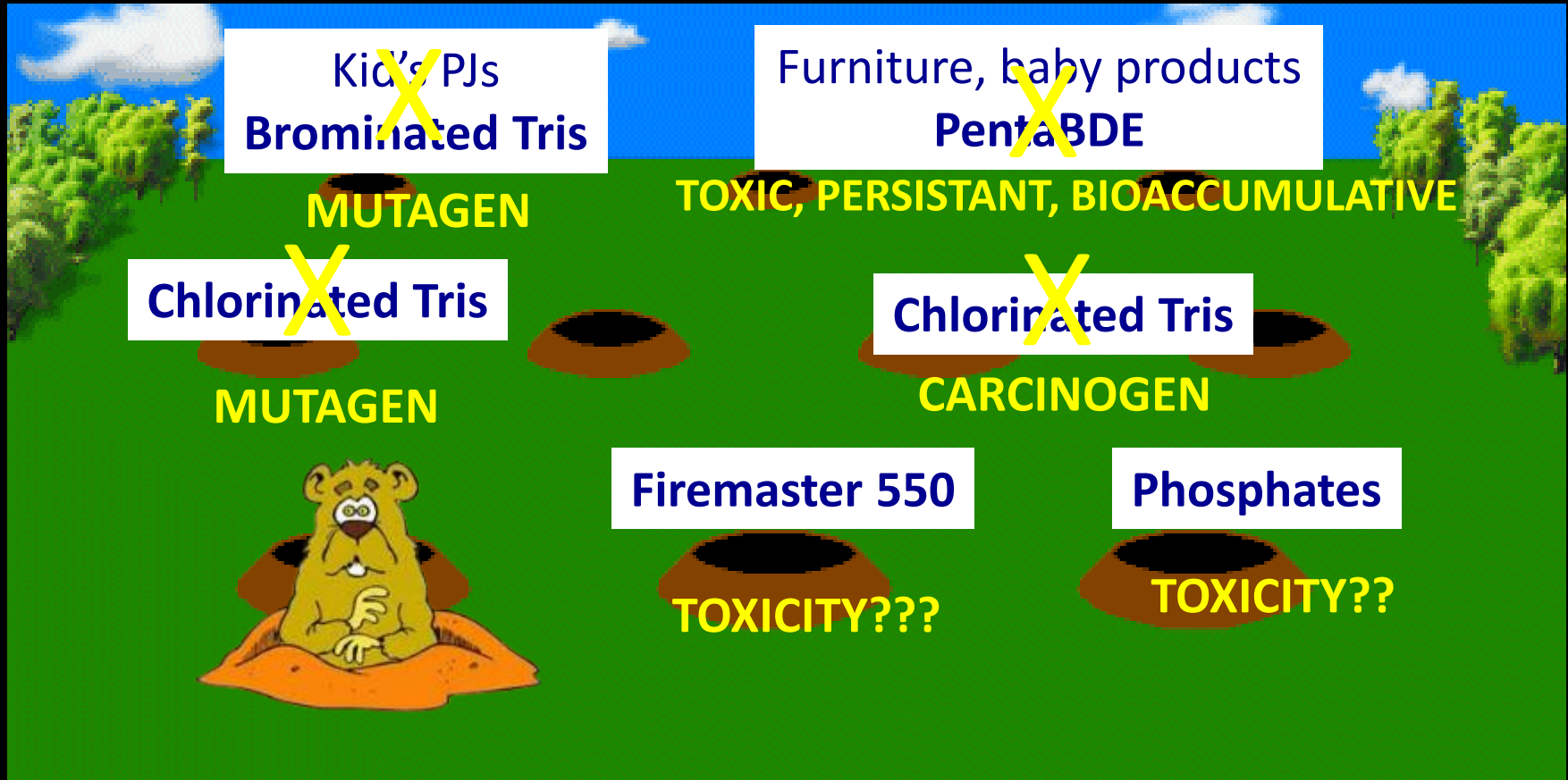
THE PROBLEM:

Most Chemicals Are NOT Effectively Regulated in the U.S.

- The U.S. Toxic Substances Control Act (1976)
- 62,000 chemicals in commerce “grandfathered”
- 20,000 new chemicals have been introduced
 - 85% have no health data
 - 67% have no data at all



Regrettable Substitutions?



New standards for increased fire safety without flame retardants



Assembly Bill 706, Senate Bill 772, Senate Bill 1291, Senate Bill 147

Playing with Fire

Goldsmith Prize
for Investigative
Reporting

Pulitzer Prize
Finalist

Environmental Journalists
Society

1st Place for Reporting
on the Environment

Chicago Tribune



QUESTIONS? CALL 1-800-TRIBUNE

SUNDAY, MAY 6, 2012

BREAKING NEWS AT CHICAGOTRIBUNE.COM

TRIBUNE WATCHDOG

Playing with fire

A deceptive campaign by industry brought toxic flame retardants into our homes and into our bodies. And the chemicals don't even work as promised.

BY PATRICIA CALLAHAN AND SAM ROE
Tribune reporters

Dr. David Heimbach knows how to tell a story. Before California lawmakers last year, the noted burn surgeon drew gasps from the crowd as he described a 7-week-old baby girl who was burned in a fire started by a candle while she lay on a pillow that lacked flame retardant chemicals.

"Now this is a tiny little person, no bigger than my Italian greyhound at home," said Heimbach, gesturing to approximate the baby's size. "Half of her body was severely burned. She ultimately died after about three weeks of pain and misery in the hospital."

Heimbach's passionate testimony about the baby's death made the long-term health concerns about flame retardants voiced by doctors, environmentalists and even firefighters sound abstract and petty.

But there was a problem with his testimony: It wasn't true. Records show there was no dangerous pillow or candle fire. The baby he described didn't exist.

Neither did the 9-week-old patient who Heimbach told California legislators died in a candle fire in 2009. Nor did the 6-week-old patient who he told Alaska lawmakers was fatally burned in her crib in 2010.

Heimbach is not just a prominent burn doctor. He is a star witness for the manufacturers of flame retardants.

His testimony, the Tribune found, is part of a decades-long campaign of deception that has loaded the furniture and electronics in American homes with pounds of toxic chemicals linked to cancer, neurological deficits, developmental problems and impaired fertility.

The tactics started with Big Tobacco, which wanted to shift focus away from cigarettes as the cause of fire deaths, and continued as chemical companies worked to preserve a lucrative market for their products, according to a Tribune review of thousands of government, scientific and internal industry

records. Heimbach's story stoked the public's fear of fire and helped organize and steer an association of top fire officials that spent more than a decade campaigning for their cause.

Today, scientists know that some flame retardants escape from household products and settle in dust. That's why toddlers, who play on the floor and put things in their mouths, generally have far higher levels of these chemicals in their bodies than their parents.

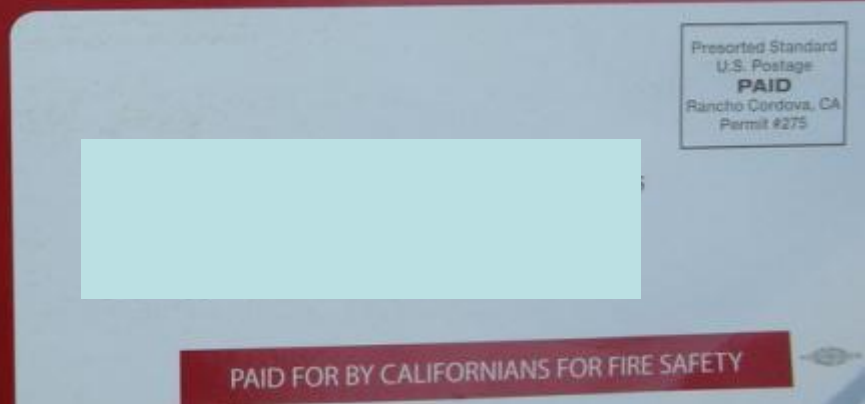
Blood levels of certain widely used flame retardants doubled in adults every two to five years between 1970 and 2004. More recent studies show levels haven't declined in the U.S. even though some of the chemicals have been pulled from the market. A typical American baby is born with the highest recorded concentrations of flame retardants among infants in the world.

People might be willing to accept the health risks if the





Every Second Counts When Escaping A Fire



Paid for by Californians for Fire Safety

- Albemarle
- Chemtura
- IC-Ltd Industrial Products (Dead Sea Bromine)



Office of Governor

Edmund G. Brown Jr.



FOR IMMEDIATE RELEASE:
Monday, June 18, 2012

Governor Brown Directs State Agencies to Change Open Flame Standard

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 may not be required where they provide no fire safety benefit

Learning from others: 97% of foam insulation (XPS/EPS) in Sweden and Norway is non-flame retarded



HBCD is a persistent organic pollutant (POP)



**STOCKHOLM
CONVENTION**

Protecting human health and the environment
from persistent organic pollutants



19 October 2012, Geneva— A UN expert body has recommended that the industrial flame retardant *hexabromocyclododecane* (HBCD) be eliminated from the global marketplace to protect human health and the environment.

Take Home Points

- Many flame retardants are associated with adverse health effects.
- No evidence that flame retardants in home furniture, baby products, and building insulation behind thermal barriers improve fire safety.
- Changing regulations and laws is difficult, but it can be done



With better flammability standards

**We can have fire safety
and a healthier world.**

Green Science Policy Institute
www.greensciencepolicy.org

<http://www.youtube.com/watch?v=hWwfcsJXHM>

Summary of Ozone Seasons

| Year | National 8-Hour | State 1-Hour | State 8-Hour |
|------|--------------------|-----------------|-----------------|
| 2011 | 4 | 5 | 10 |
| 2012 | 4 | 3 | 8 |
| 2013 | 3 | 3 | 3 |
| 2014 | 3 | 2 | 5 |

Spare the Air Alerts: 5/12, 5/13, 5/14, 6/8, 6/9

Days > 0.075 ppm 8-hour NAAQS: 4/30, 5/1, 5/14