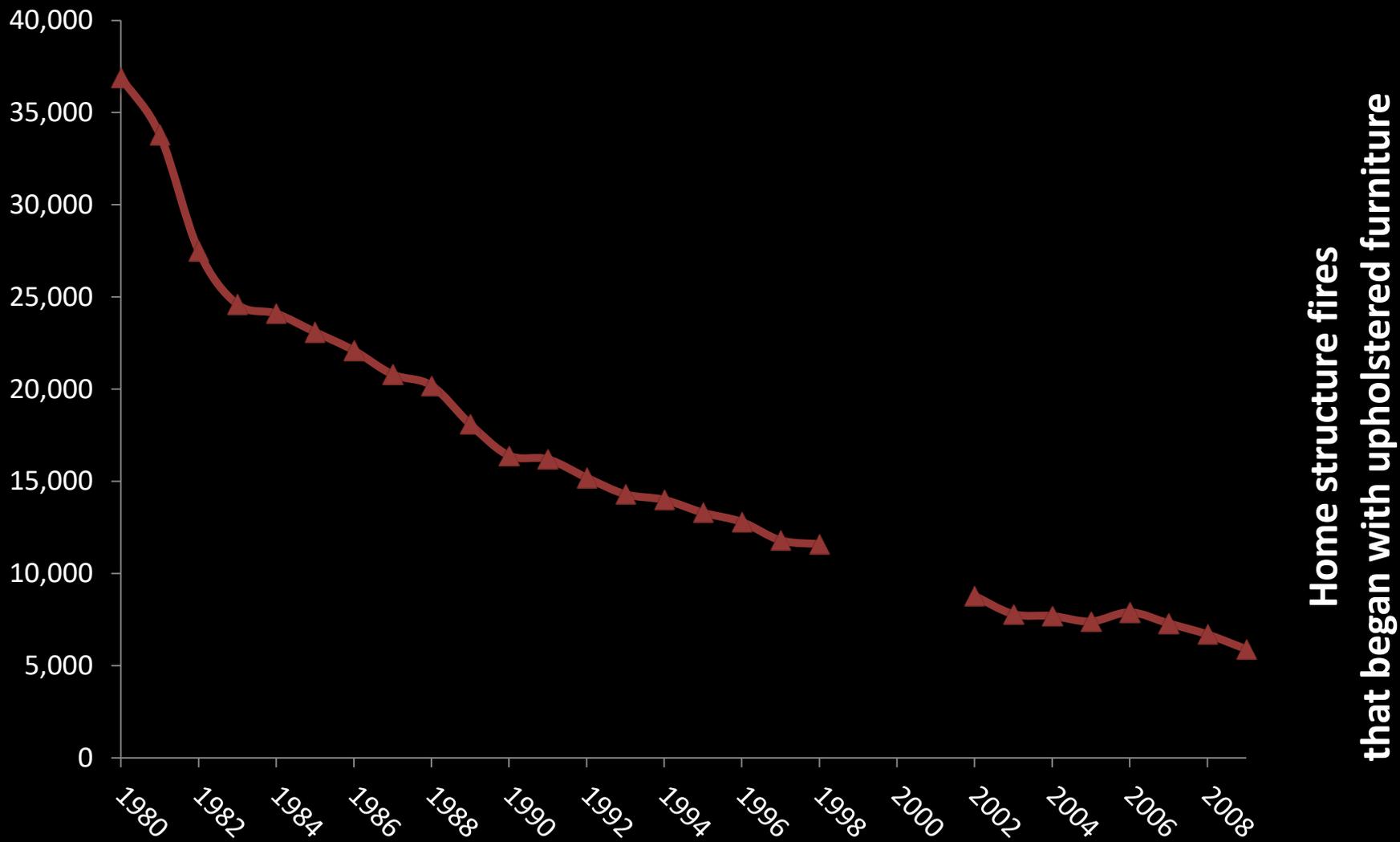


Flame retardants in furniture: Do we need them?

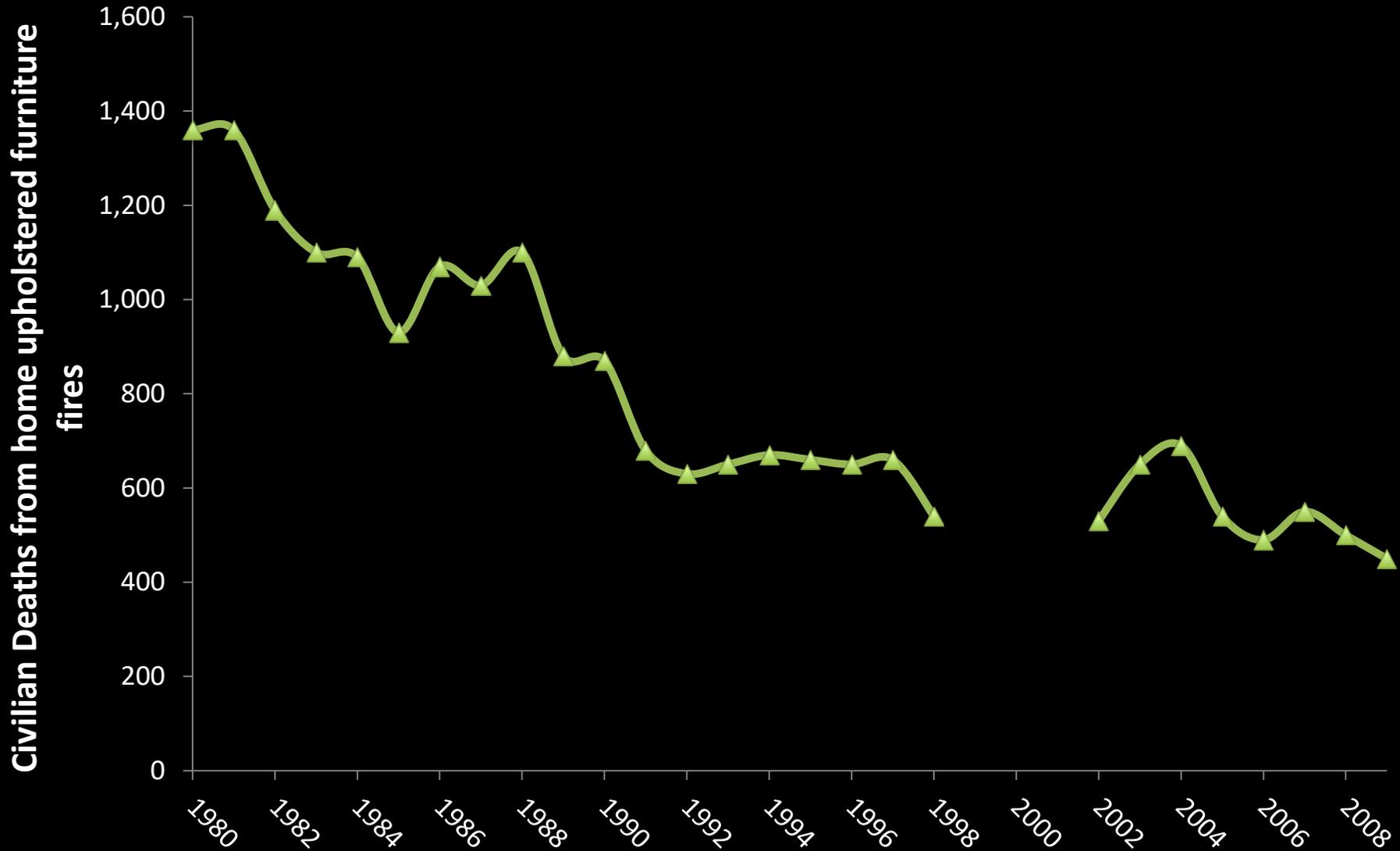


Donald Lucas, Ph.D.
Lawrence Berkeley National Laboratory (retired)
Green Science Policy Institute

Fires that start in furniture decreasing



Furniture fire deaths decreasing



Furniture fires caused by

Smoldering

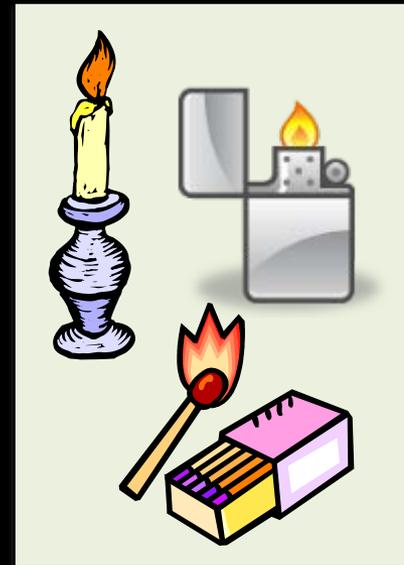


Open flame



Furniture fires often start with smoldering:

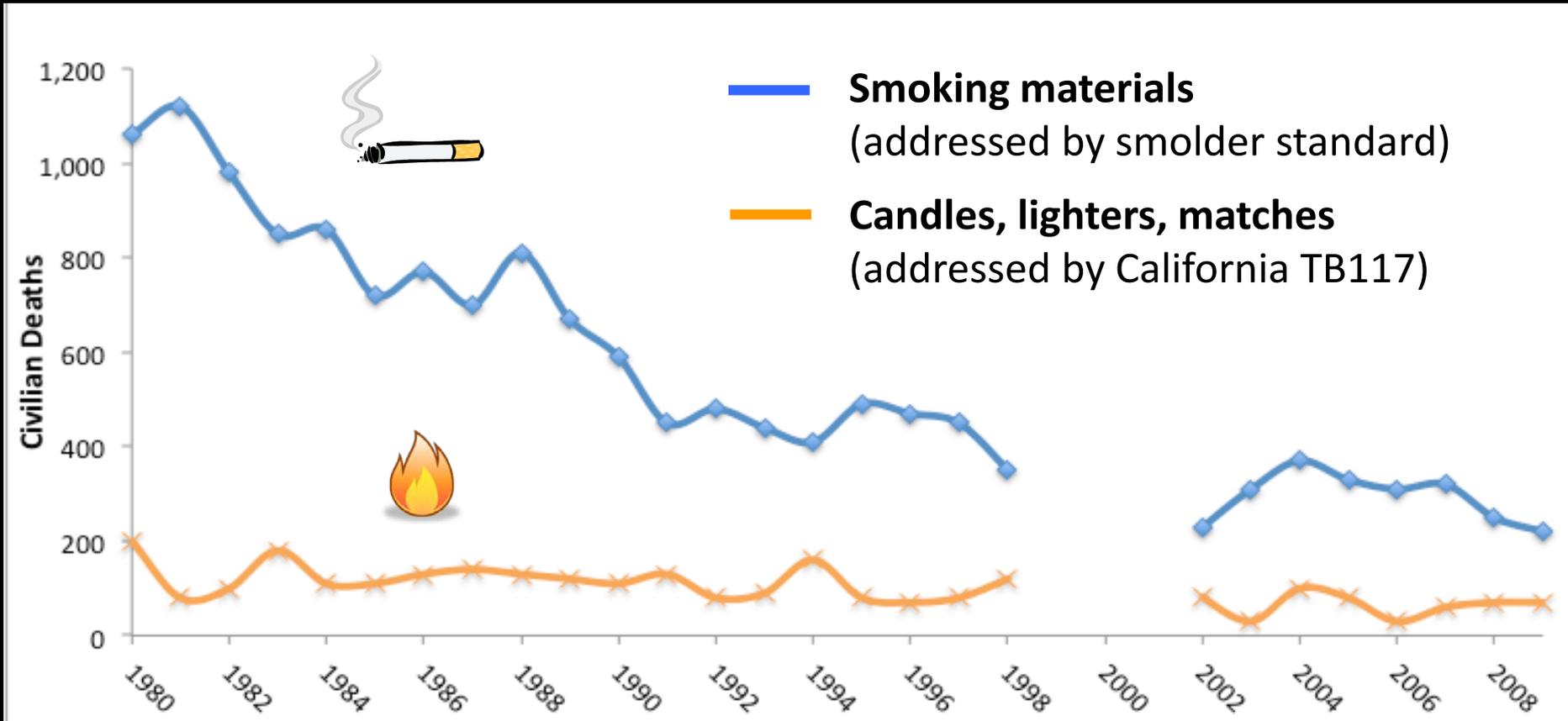
- Cigarettes
- Electrical sources



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”

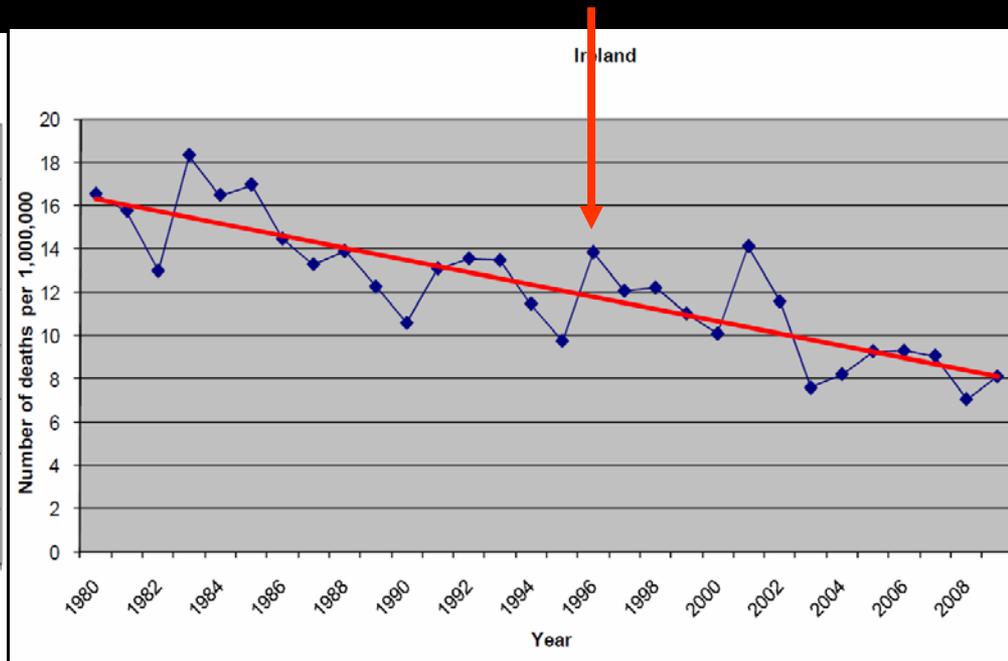
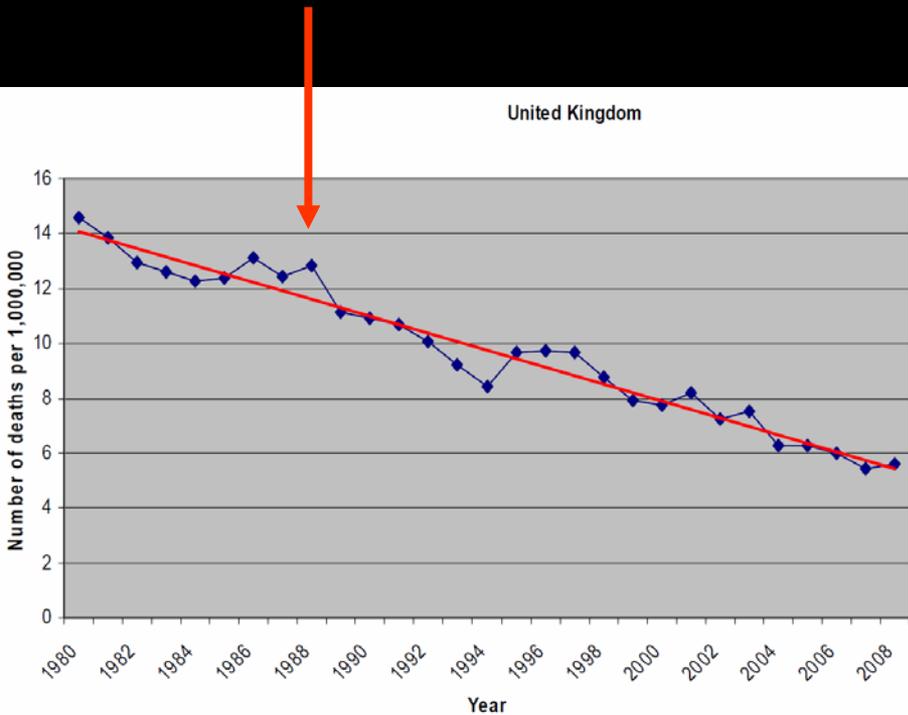
Smoking materials cause the most furniture fire deaths



Civilian deaths from home upholstered furniture fires, 1980-2009

Fire death statistics

Which year were UK & Irish regulations introduced?

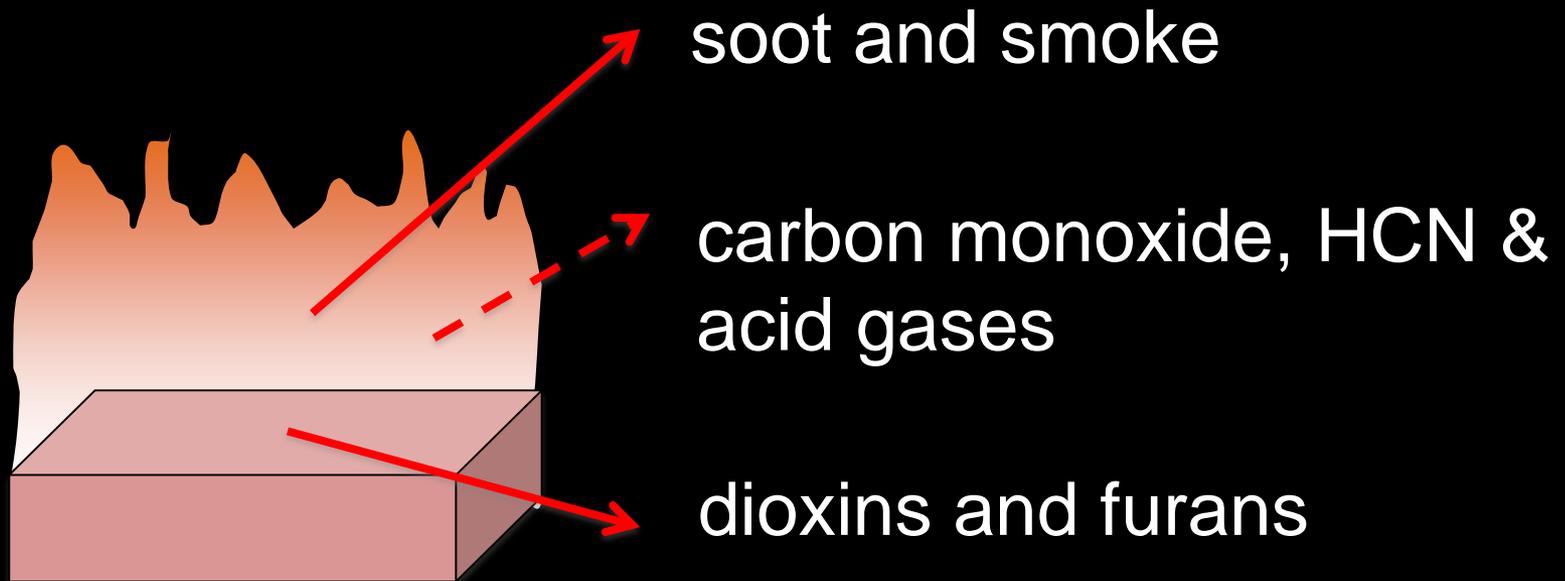


Data from Arcadis report on Flame Retardants 2011

Fire toxicity

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

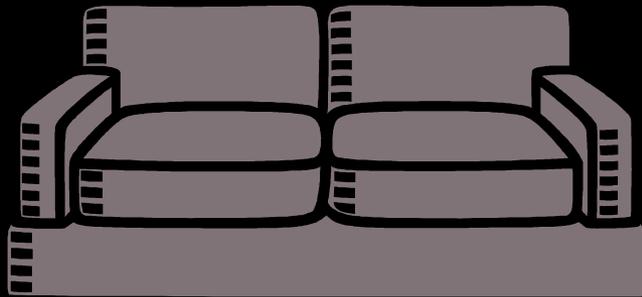
When foam does burn, flame retardants can produce
or increase....



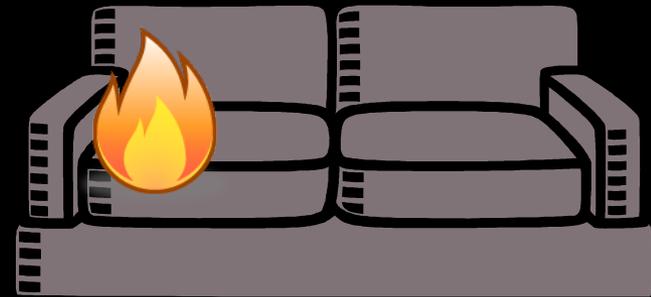
Depends on the size, location, and duration of the fire!

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



BUREAU OF HOME
FURNISHINGS AND
THERMAL INSULATION

Technical Bulletin 117

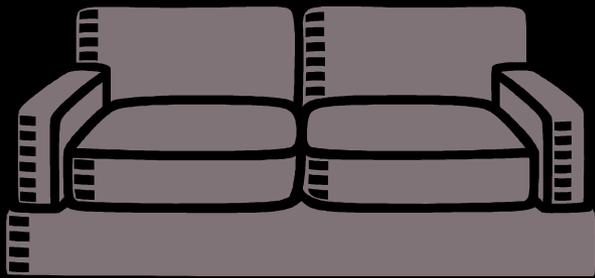
NOTICE

THIS ARTICLE MEETS
THE FLAMMABILITY
REQUIREMENTS OF
CALIFORNIA BUREAU
OF HOME FURNISHING
TECHNICAL BULLETIN
117. CARE SHOULD
BE EXERCISED NEAR
OPEN FLAME OR WITH
BURNING CIGARETTES

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

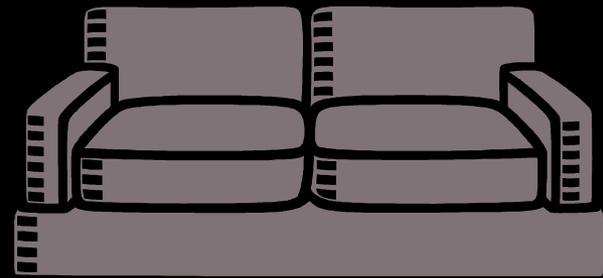
Fire Safety Benefit of TB117?

Flame retarded foam



~

Plain foam



“No significant, consistent difference...”

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?

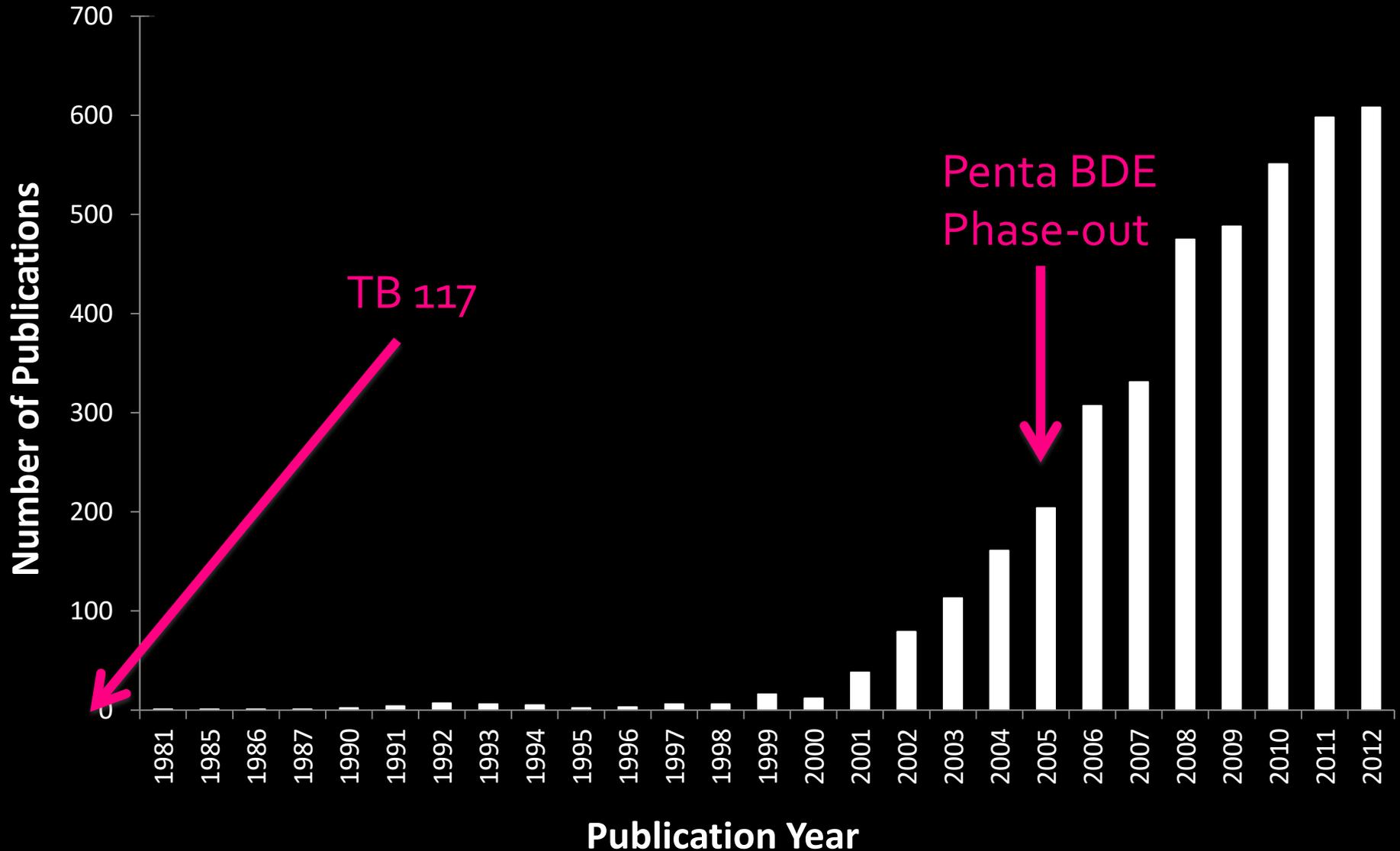
Firefighters



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

G.K. LeMasters, et al, Journal of Occupational and Environmental Medicine
48(11): 1189-202(2006). NIOSH (2014)

4000+ articles on PBDEs



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

GRANTED – 20 September 2017

Declare as “banned hazardous substances” any:

- Children’s products
- Residential furniture
- Mattresses & mattress pads



containing additive, non-polymeric organohalogen FRs

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.

DEFEATED – 10 April 2018



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