Updating Flammability Standards

• Children’s sleepwear -- 1976

• Furniture and baby product foam -- 2013

• Foam plastic building insulation -- 2019?
Flame Retardants in Insulation Are Associated with Health Problems

- Reproductive Impairment
- Hormone Disruption
- Neurological Impairment
- Possible Carcinogenicity

- Persistent
- Bioaccumulative
- Aquatic Toxicity

Covaci et al., 2006; Koch et al., 2018; Marvin et al., 2011
Are we exposed to flame retardants from building insulation?

End-of-life: Recycling/reuse, incineration, landfilling

Demolition

FR manufacture

In-use: Dust & Air

Installation

Product manufacture
PolyFR: Another Regrettable Substitute?

- 2019 study on degradation of “PolyFR”
- Heat and UV light cause breakdown to smaller compounds
- Some products are brominated organics and probably more toxic
- PolyFR is likely a regrettable substitute, not worthy of its “green” marketing
Are flame retardants necessary in foam plastic building insulation?
Building codes drive use of flame retardants in insulation
Flame retardants can increase smoke toxicity more than they reduce fire growth

Flame retardants delay, but don’t prevent foam from burning

Flame retardants can increase:

- Soot and Smoke
- Carbon Monoxide and Hydrogen Cyanide
- Dioxins and Furans

Hull 2017; Bocchini 2009; Mennear 1994
Updated Codes

FR-free foam insulation is allowed in Spain, Norway, Sweden, and Finland.

97% of XPS and EPS in Sweden and Norway is FR-free.

Codes have been in place for up to 18 years without repeal.
Governor Brown Directs State Agencies to Revise Flammability Standards

‘We must find better ways to meet fire safety standards by reducing and eliminating - wherever possible - dangerous chemicals.’
California Assembly Bill 127 (signed October, 2013):

- California fire marshal may propose updates that:
  - Maintain overall fire safety
  - Provide flexibility in meeting fire safety standards with or without chemical flame retardants
Oklahoma State University Study: Summary

Commissioned by California OSFM following AB 127 Working Group.

Key Findings

• Comparable ignition and heat release rates between foam plastic insulation with and without flame retardants and other combustible construction materials.

• When installed below grade, no risk of fire spread to the structure from insulation without flame retardants.

California codes can be safely updated to allow below-grade use of insulation without flame retardants.
California Code Adoption Timeline

2013
• AB 127 Signed

2014-2015
• Phase I Working Group Meets

2015-2017
• Phase II Working Group Meets
• OSU Conducts Flammability Studies

2018
• SFM Proposes Code Change
• Code Advisory Committee Hearing
• Public Comment Period

Jan 2019
• Building Standards Commission Meeting
California Building Standards Commission Hearing

- 26 Speakers attend or call in to testify in support of Safer Insulation
- Fierce chemical industry opposition

California Building Standards Commission unanimously votes to allow flame-retardant free insulation below a concrete slab
2019 Opportunity for Insulation Code change:

• 2021 International Residential Code will be updated in 2019
• Proposal Similar to California Code
• Lead Proponent: Reax Engineering
  • Co-proponents include: San Francisco Firefighters Cancer Prevention Foundation, American Institute of Architects, County Building Officials Association of California
Committee Action Hearings

• April 28-May 8 (pending meeting agenda publication) in Albuquerque, NM
  – Also hearings at Public Comment Meeting, October 23-30 Las Vegas, NV

• Who would give persuasive testimony?
• Who is willing to testify?