
Flame retardant chemicals in consumer products



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Natural Resources Defense Council



MISSION STATEMENT

To safeguard the Earth: its people, its plants and animals and the natural systems on which all life depends.

Toxic chemicals in our everyday products: **flame retardants**

- Flame retardants: what, why and where?
- Adverse health and environmental impacts
- Flame retardants and fire safety



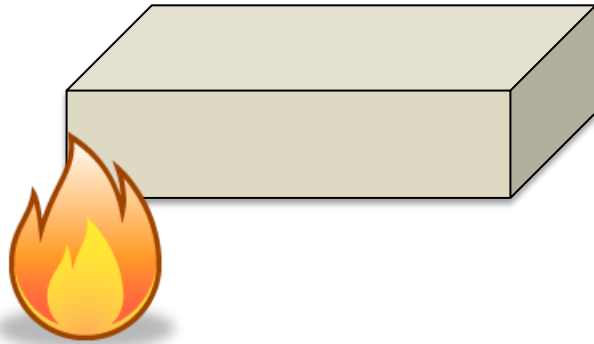
What are flame retardant chemicals?

- Chemicals added to products to meet flammability standards
- Goal is to prevent, slow fires
- Used in products since the 1970's
- Many associated with health, environmental impacts
- Effectiveness questionable

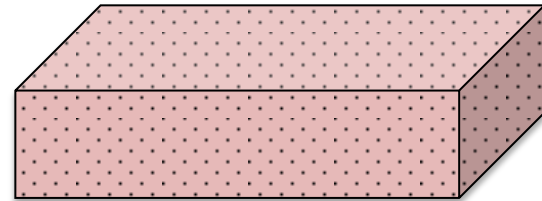


Flame retardants used to meet Technical Bulletin 117 (TB117) standard

1975 California standard for furniture, juvenile products

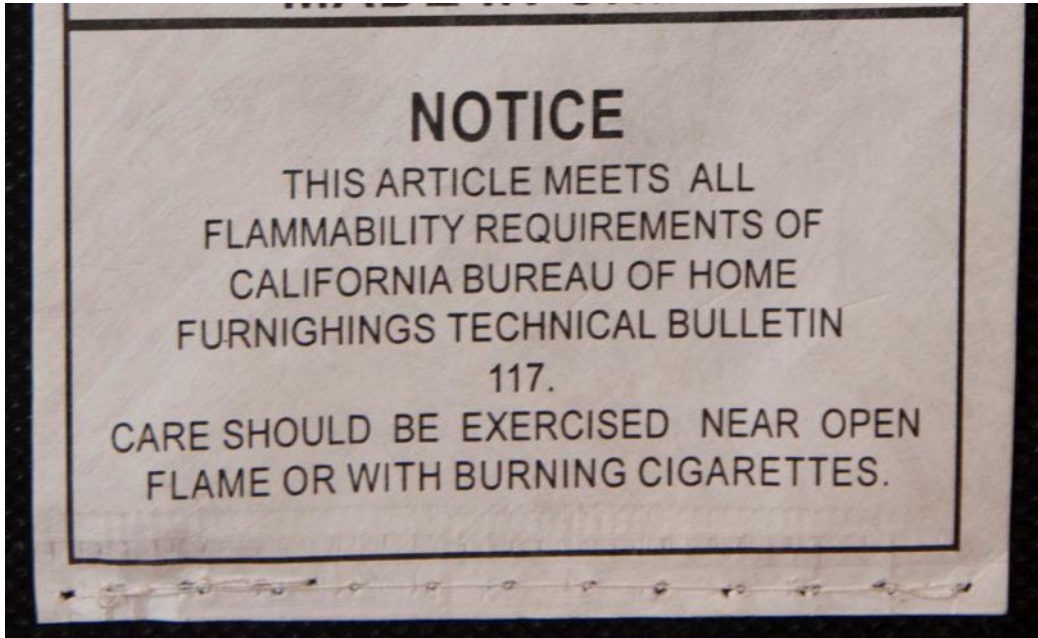


Test of filling inside products

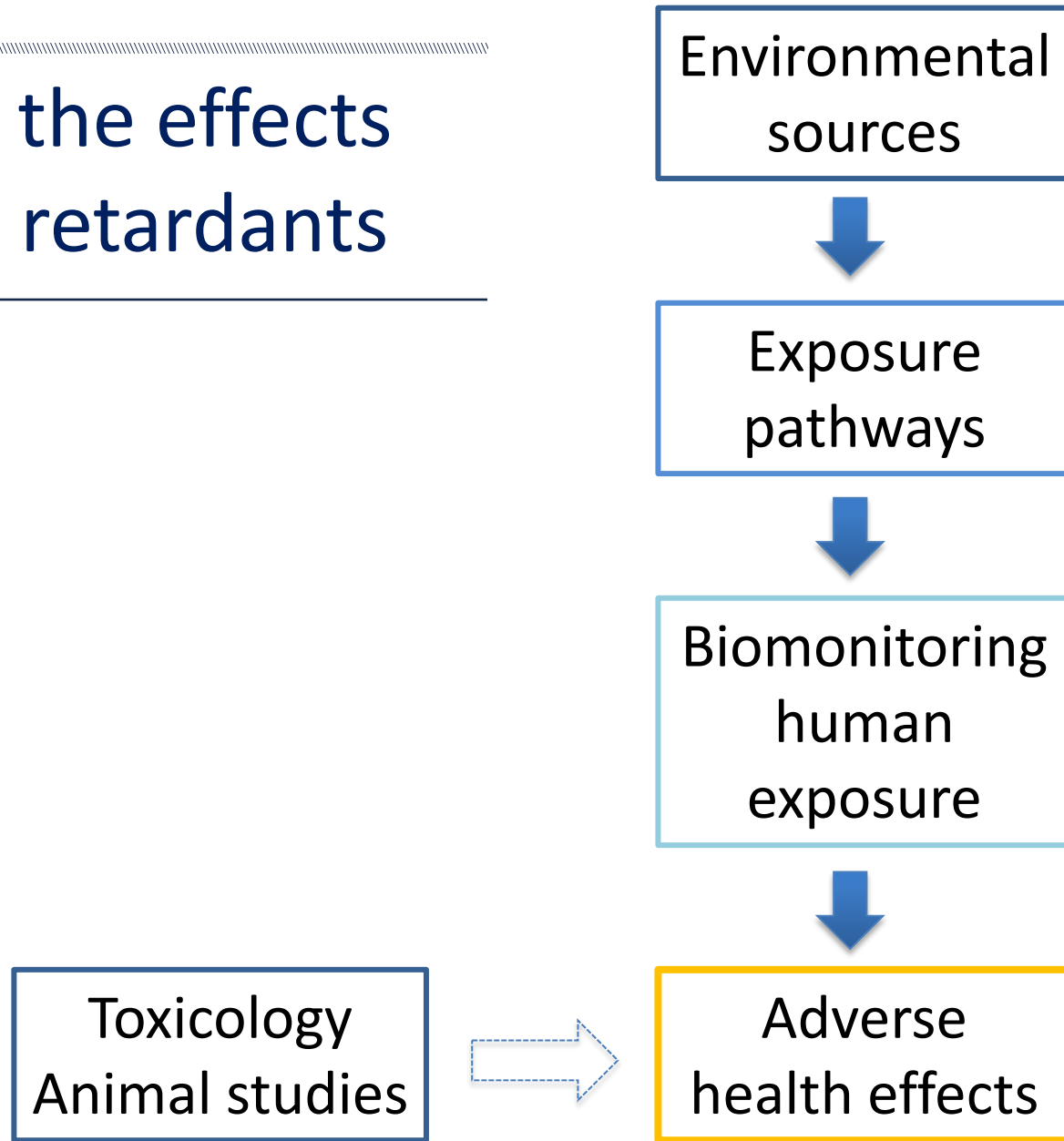


Flame retardants added to pass the test

TB117 label on products



Tracking the effects of flame retardants



PBDE flame retardants used in wide variety of products
since 1970's

PolyBrominated Diphenyl Ethers



Foam inside furniture, baby products

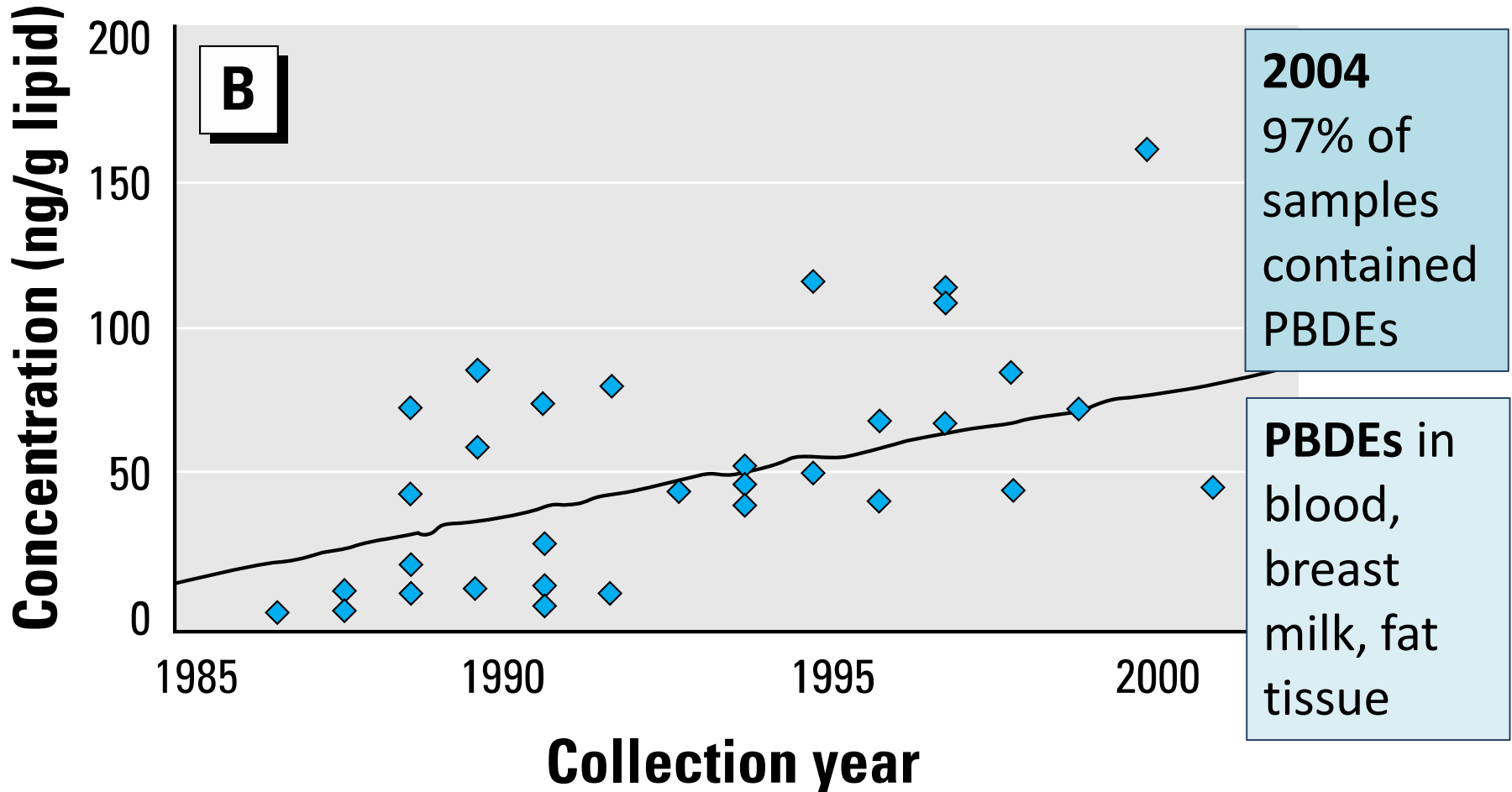


Electronics cases



Textiles

PBDE flame retardant levels rising in people



HOW DO FLAME RETARDANTS GET INTO PEOPLE?

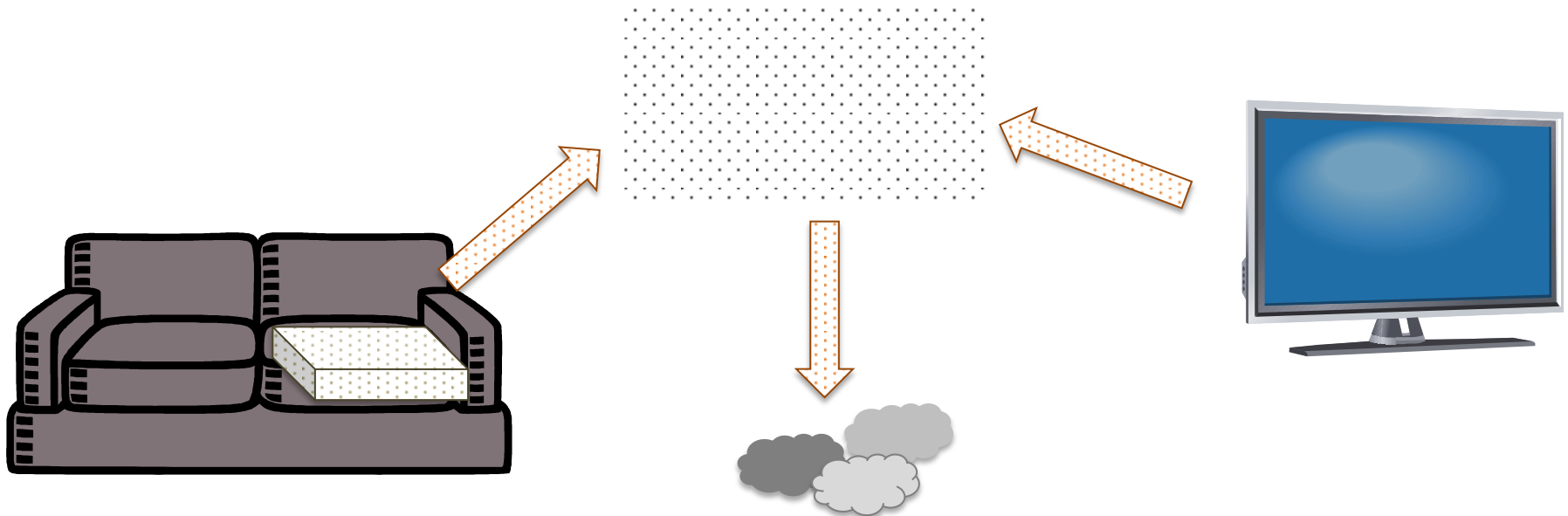
What are the exposure pathways?

Flame retardants continuously migrate out of products

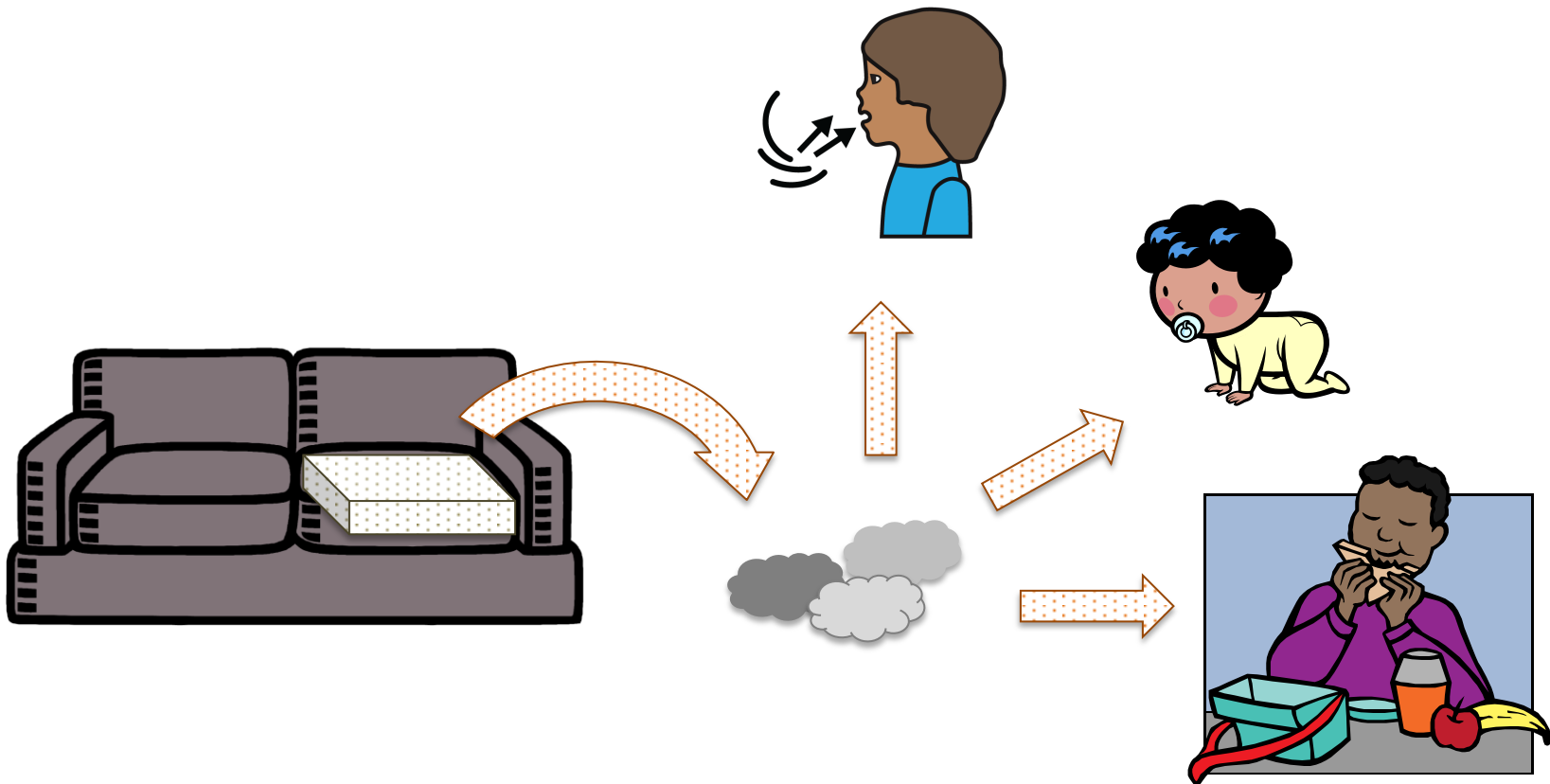
① Not chemically bonded to plastic materials

② Chemicals off-gas
Attach to particles in air

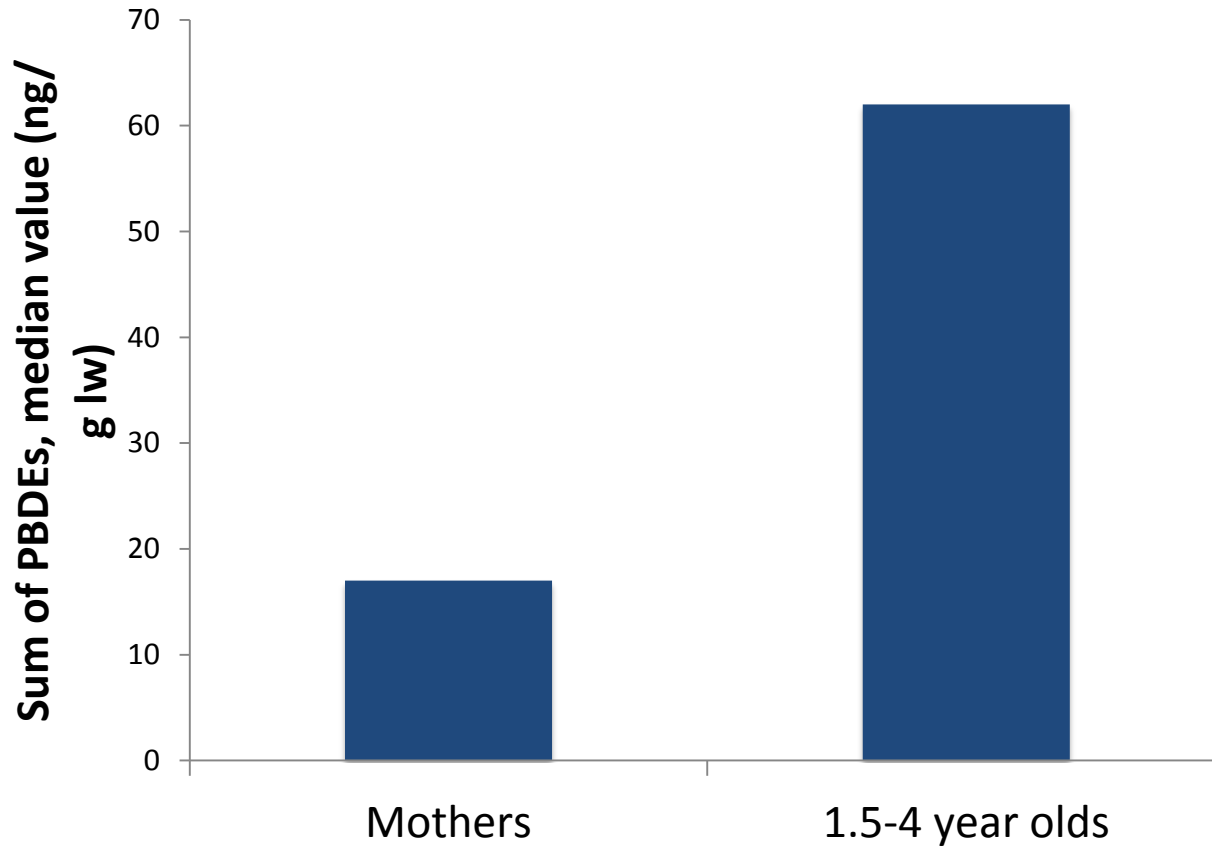
③ Contaminated particles settle in house dust



Flame retardants enter people's bodies in contaminated dust



Young children are vulnerable to chemical exposures from dust



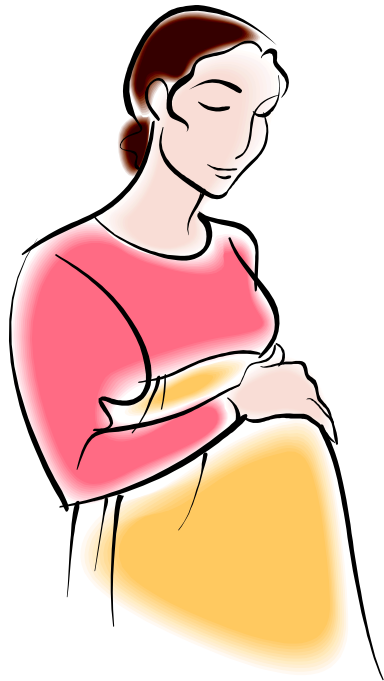
Adverse health effects of PBDEs: animal studies

- Endocrine disruption: thyroid hormones
- Affect brain development
- Affect reproductive development and fertility
- Affect immune function
- Cancer



Epidemiological studies: human health associations

Higher PBDE levels



longer time to get pregnant
altered thyroid hormones

associated with

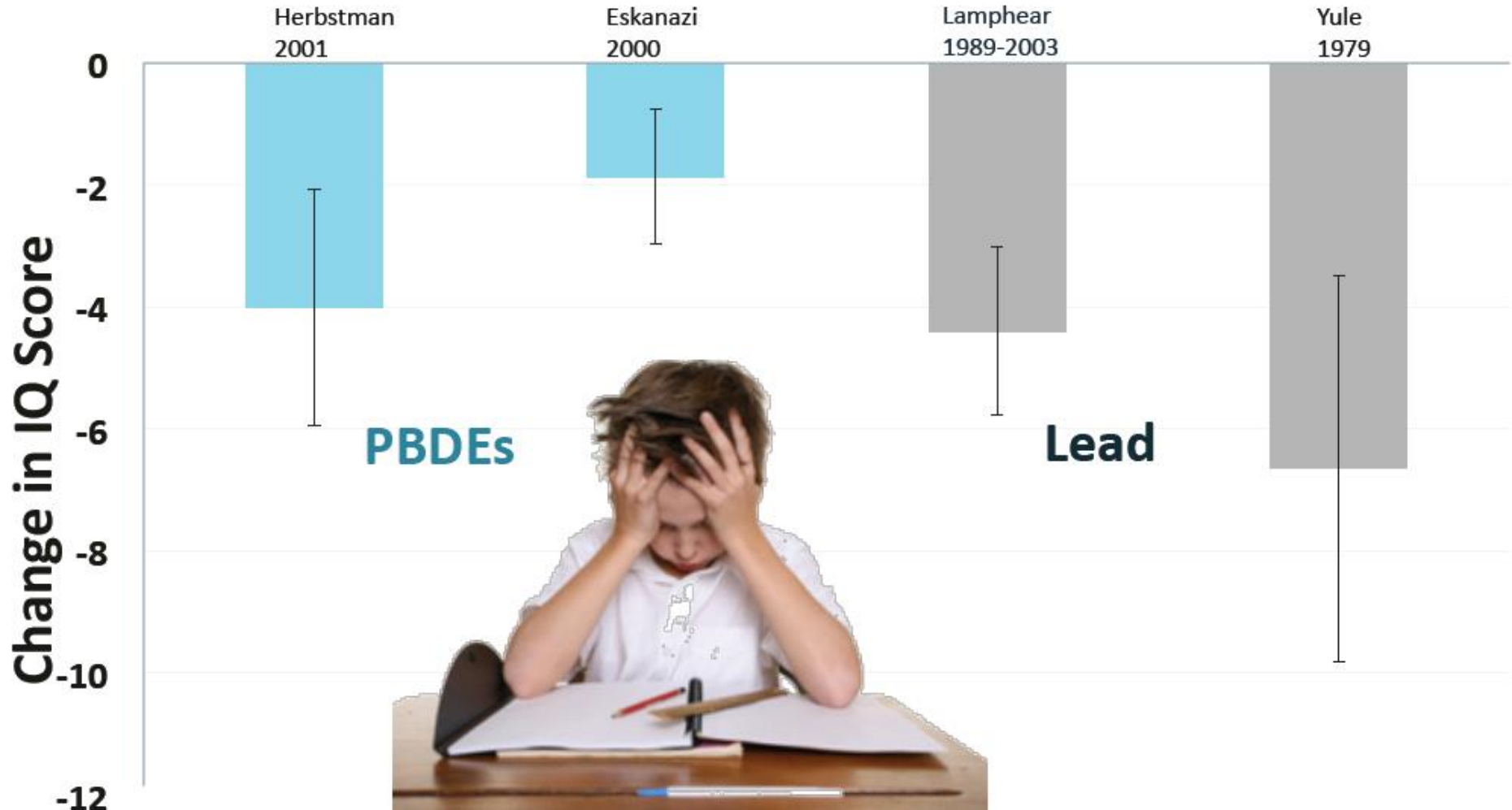


lower birth weight
impaired attention
poorer coordination
lowered IQ



hormone changes
decreased sperm
quality, testis size

PBDEs are the “new lead”

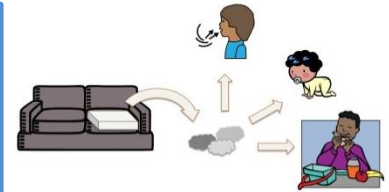


Tracking the effects of flame retardants

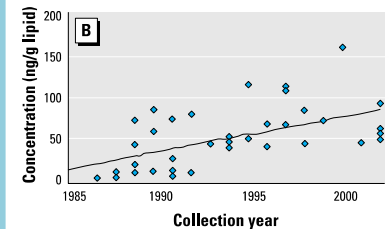
Environmental sources



Exposure pathways



Biomonitoring human exposure



Toxicology
Animal studies



Adverse health effects



PBDEs banned, phased out of use

Persistent

These are properties of
Persistent Organic Pollutants

Bioaccumulative

Toxic

- Considered unmanageable risks
- Once on planet, will be with us a very long time
- Spread cannot be controlled

A few official Persistent Organic Pollutants

PBDEs

DDT

PCBs



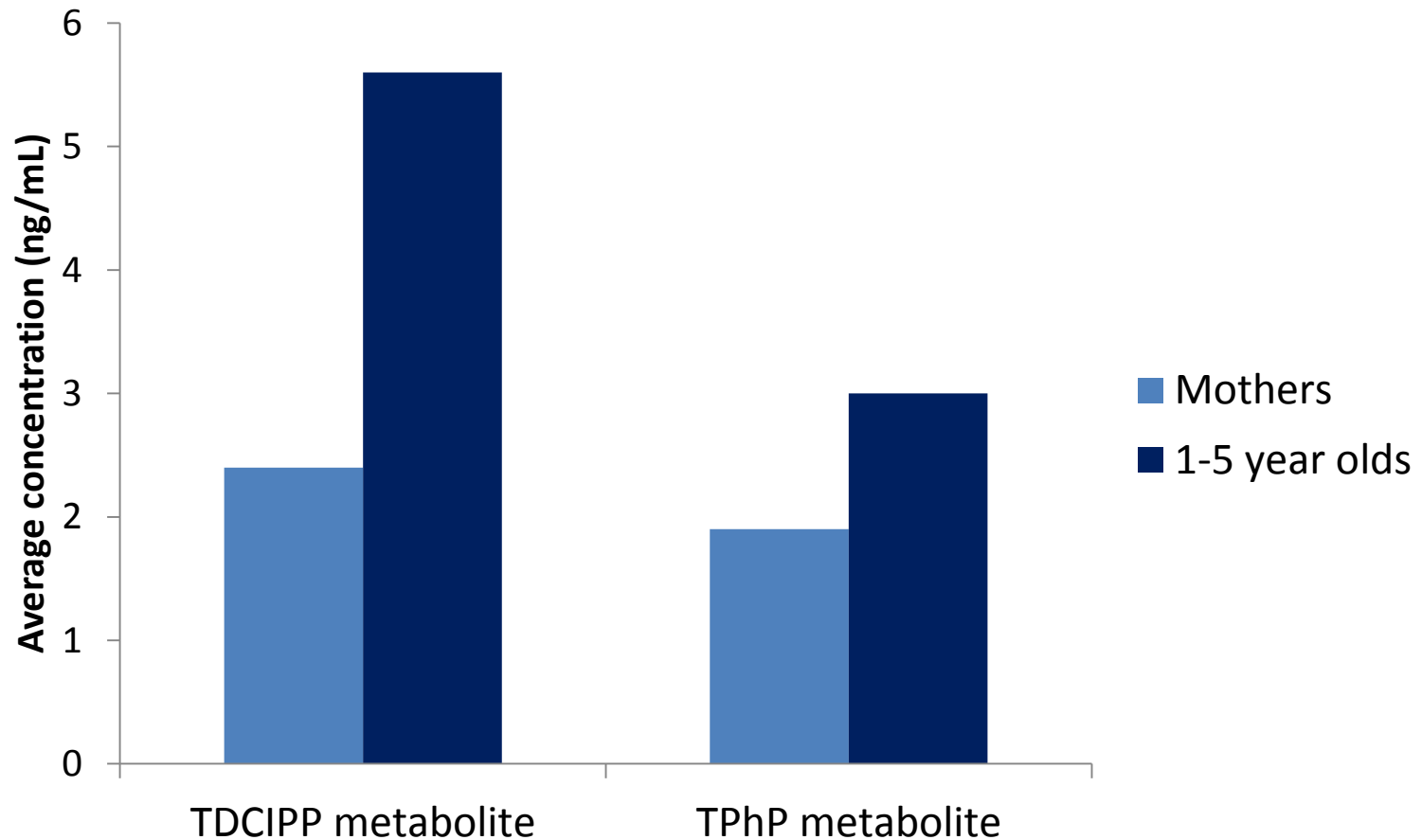
**CAN WE REPLACE PBDES WITH
SAFER FLAME RETARDANTS?**



Toxic whack-a-mole: moving from one similar chemical to another



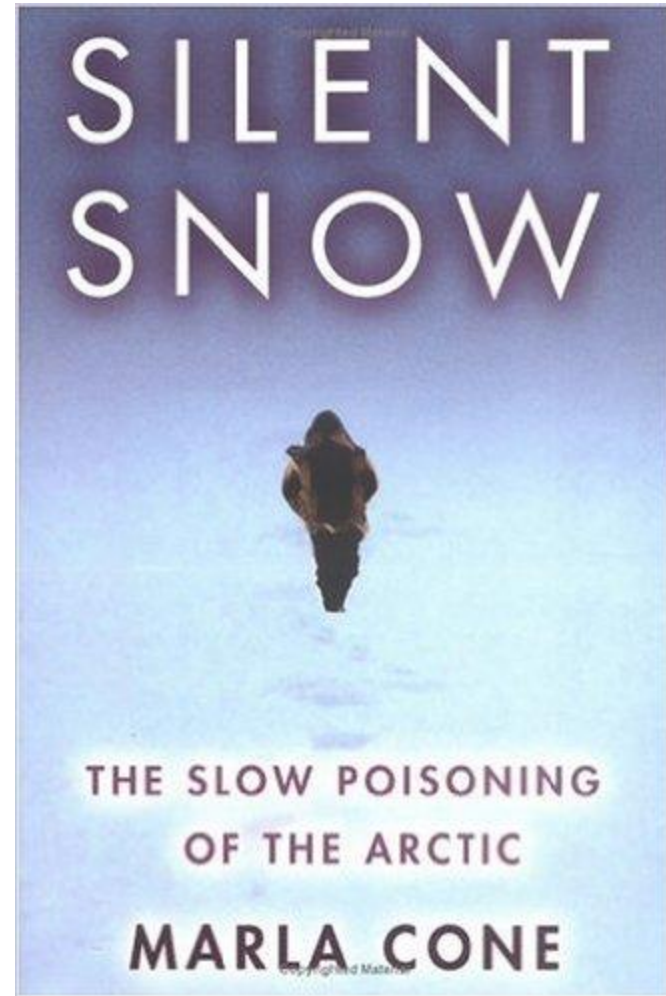
Young children have higher levels of replacement flame retardants in their bodies



Babies and toddlers: replacement flame retardant exposures from dust and baby products



Replacement flame retardants are global
contaminants



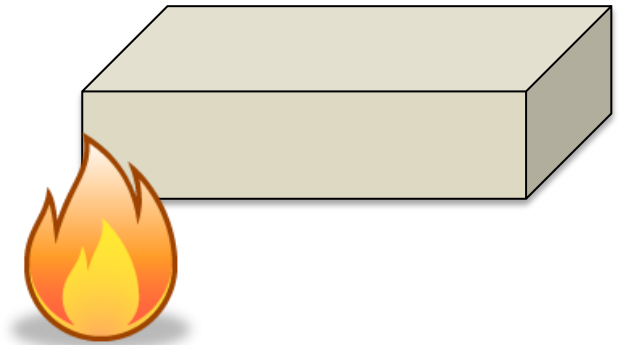


**IS IT NECESSARY TO USE FLAME
RETARDANT CHEMICALS IN OUR
EVERYDAY PRODUCTS?**

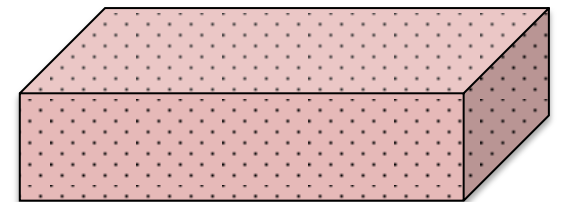


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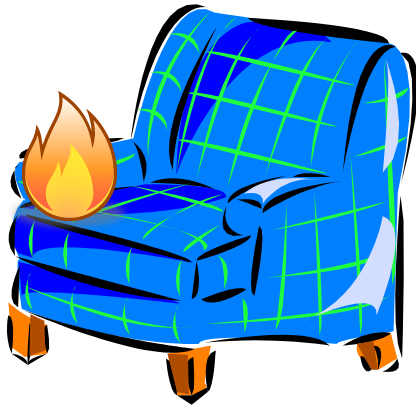
Test of filling inside products



Flame retardants added to pass the test

Flame retardants in filling are not effective

Do not prevent fires or decrease fire hazard



no flame retardants



with flame retardants

“Worst of both worlds”

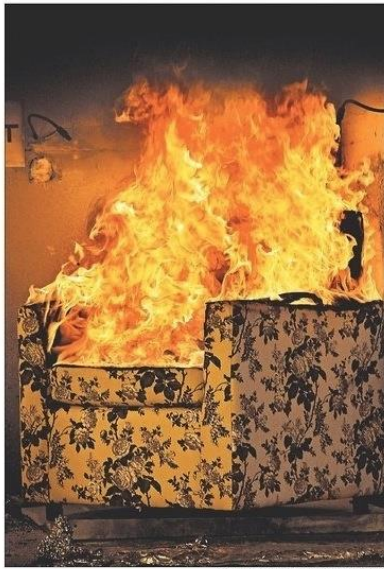
Flame retardant industry deceptive tactics exposed



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.



CONSUMER PRODUCT SAFETY COMMISSION PHOTO

By PATI
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linked to
deficits, developmental
problems and impaired fertility.
The tactics started with Big
Tobacco, which wanted to shift
focus away from cigarettes as
the cause of five deaths, and
continued as chemical compa-
nies worked to preserve a lucra-
tive market for their products,
according to a Tribune review
of thousands of government,
scientific and internal industry
documents.
These powerful industries
distorted science in ways that
oversat the benefits of the

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MERCHANTS OF DOUBT

...
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
flame retardants packed into
sofas and easy chairs worked as
promised. But they don't.
The chemical industry often



THANK YOU!

