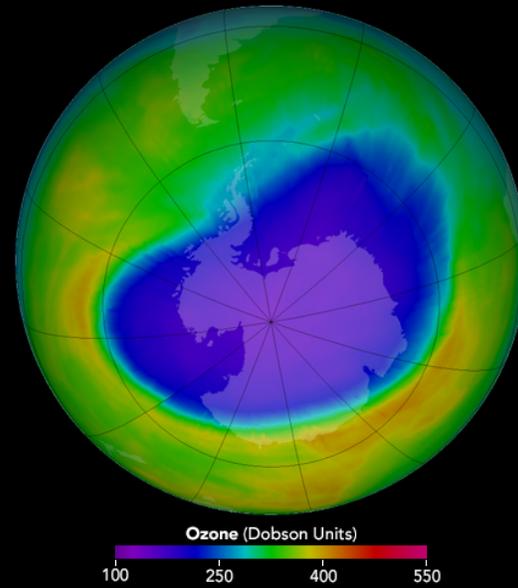
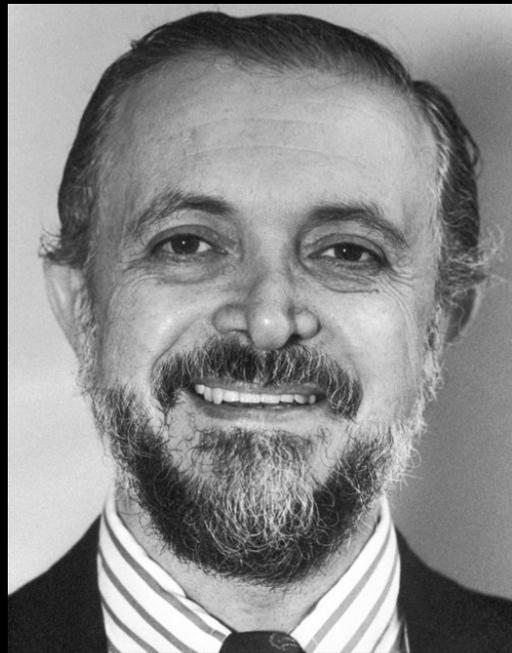


Radically Reimagining a Less Toxic World

Joe Charbonnet, PhD

UC Berkeley Science Leadership and Management

September 9, 2019





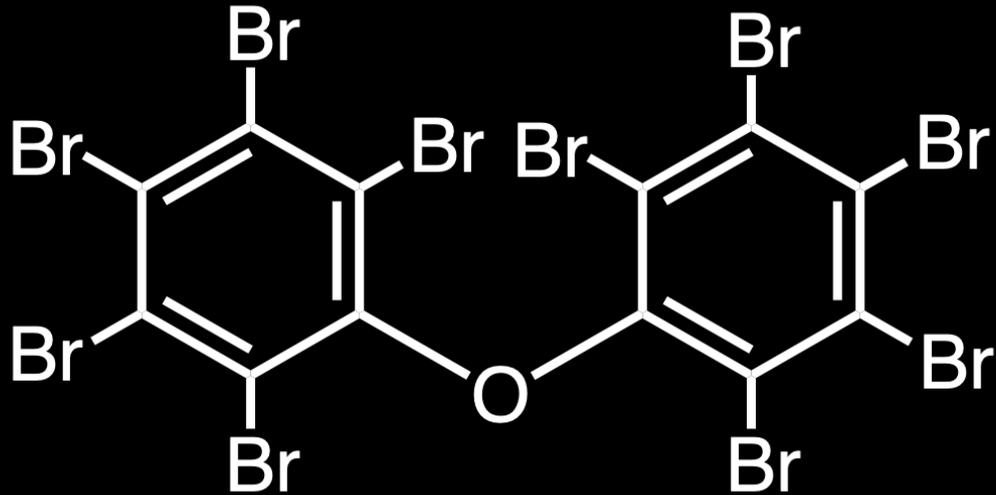
Is it necessary?

Is it worth it?

Is there a safer alternative?

Communicating scientific
concepts to lay audiences

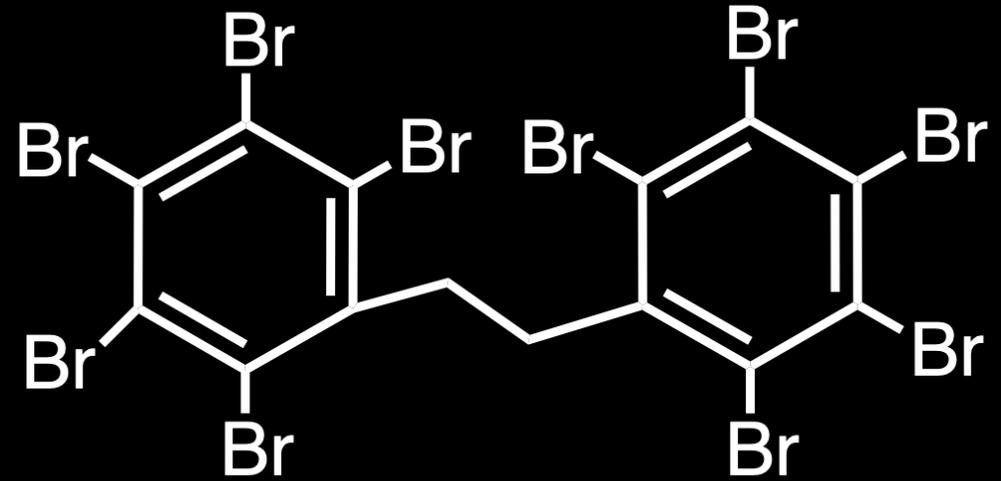
Regrettable Substitution



Decabromodiphenyl
ether

Concerns:

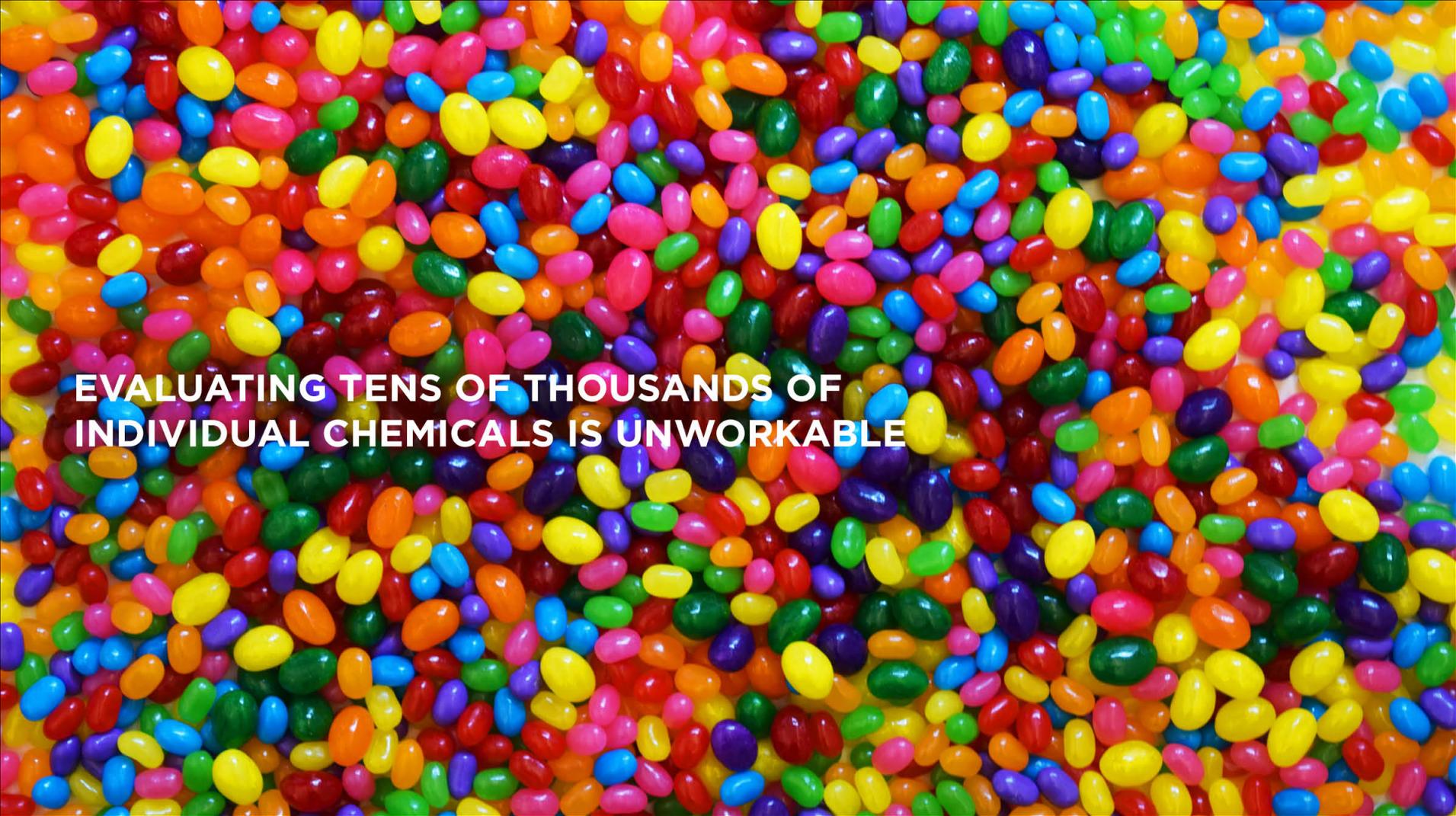
- Persistence
- Bioaccumulation
- Toxicity



Decabromodiphenyl
ethane

Concerns:

- Persistence
- Bioaccumulation
- Toxicity



**EVALUATING TENS OF THOUSANDS OF
INDIVIDUAL CHEMICALS IS UNWORKABLE**

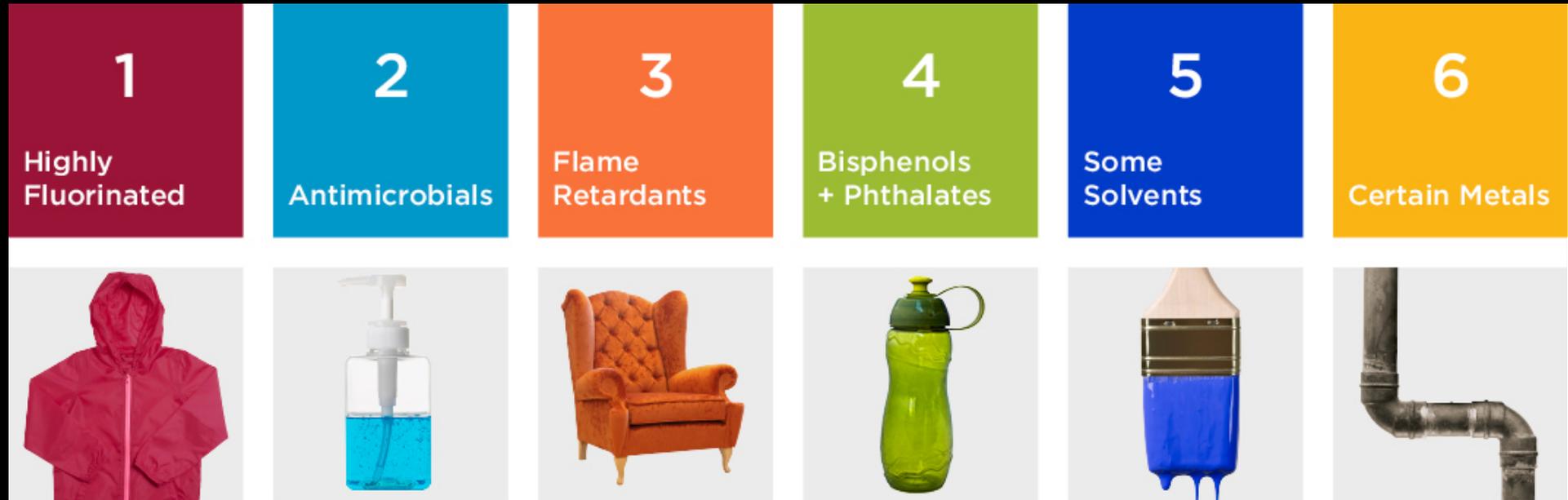


BUT ADDRESSING **SIX GROUPS** OF
CHEMICALS OF CONCERN IS MANAGEABLE



Six Classes Videos

An innovative approach to reducing toxics



VIEW and SHARE: www.SixClasses.org

Healthier products, healthier people in four minutes!

Communicating to scientists

Do flame retardants save lives?

Flame Retardants in Furniture Foam: Benefits and Risks

VYTENIS BABRAUSKAS¹, ARLENE BLUM^{2,3}, REBECCA DALEY³, and LINDA BIRNBAUM⁴

¹Fire Science and Technology Inc.

9000 - 300th Place SE, Issaquah WA 98027 USA

²Department of Chemistry

San Antonio Statement on Brominated and Chlorinated Flame Retardants

Article

Joseph DiGangi¹, Arlene Blum^{2,3}, Åke Bergman⁴, Cynthia A. de Wit⁵, Donald Lucas⁶, David Mortimer², Arnold Schechter⁸, Martin Scheringer⁹, Susan D. Shaw¹⁰, Thomas F. Webster¹¹

¹ International POPs Elimination Network, Berkeley, California, USA, ²

Jump to
Signatories

Supplemental Mate

NIST Technical Note 1747

Factors Influencing the Smoldering Performance of Polyurethane Foam



BUILDING RESEARCH & INFORMATION (2012) 40(6), 738–755



INFORMATION PAPER

Flame retardants in building insulation: a case for re-evaluating building codes

Vytenis Babrauskas¹, Donald Lucas², David Eisenberg³, Veena Singla⁴,
Michel Dedeco⁵ and Arlene Blum^{4,5}

“No significant, consistent difference...”

Flame retardant combustion:

- Smokier, more difficult to escape fires
- Toxic combustion by-products

Flammability Standards Drive FR Use:

Technical Bulletin 117



Furniture foam to withstand a small open flame for 12 seconds

- Smolder vs. open flame fires—6:1 death ratio
- Slow response in ionizing smoke detectors

ASTM E84

All insulation must pass Steiner tunnel test



- Behind thermal barrier?
- Beneath a concrete foundation?

Communicating to
industry, policymakers,
and the press

4 attempts at legislative reform of TB 117....

A DEADLY MISTAKE

DON'T LET THE SACRAMENTO PROVEN FLAME RETARDANTS



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

staked 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



Code Reform

TB 117-2013: Updated standard

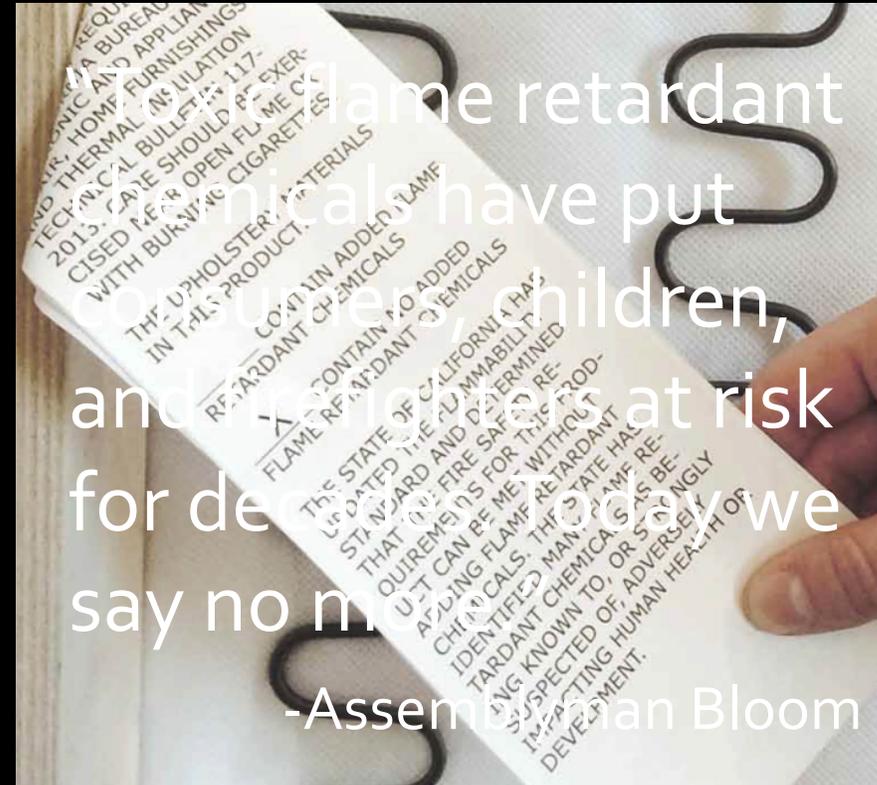
- Greater fire safety, optional FR use
- Reporting on label

TB 133: Open-flame testing of upholstered furniture in high occupancy public spaces

- Repealed January 2019

AB 2889: California Bans Flame Retardants in furniture, children's products & mattress foam

- Signed September 2018



Building coalitions

Insulation: Building Code Change

January 2019: California Building Standards Commission unanimously votes to allow flame-retardant free insulation below a concrete slab



May 2019: International Code Council rejects same proposal language by vote of 10-1

Communicating research to the press

LIVE HD



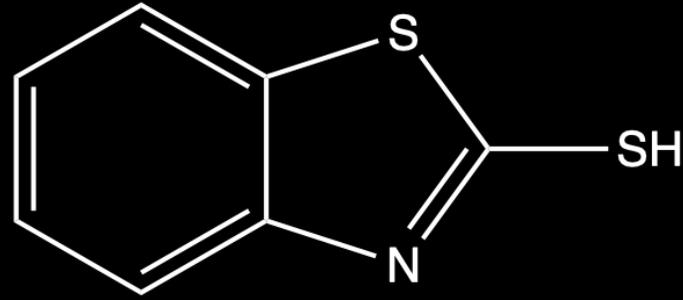
STORM TRACK
SUN VALLEY
EYEWITNESS NEWS



February 2, 2019
Sun Valley, Los Angeles



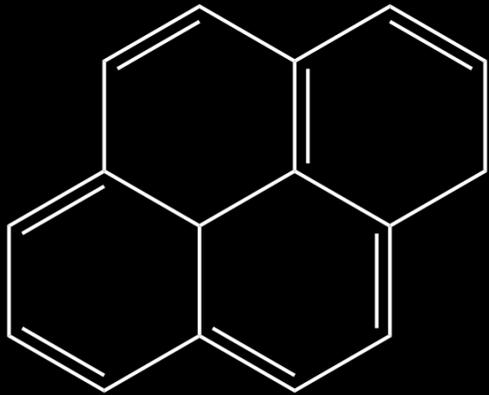
Diuron
Herbicide



Mercaptobenzothiazole
Tire Wear Product

Pb

Lead
Legacy Soil Contamination



Pyrene
Auto Exhaust Product



Bisphenol A
Plasticizer

Cu

Copper
Break Wear Product



Man Sand

Man Sand

Man Sand

JAN
M.G.



**Rory Shaw Park, 2025
Sun Valley, Los Angeles**

I was long aware of the problem
before the inherent difficulties had
finally been surmounted.

-Max von Laue



GreenSciencePolicy.org

SixClasses.org

PFASCentral.org