



Regulating PFASs as a Chemical Class Under the California Safer Consumer Products Program

Simona A. Bălan, PhD

NEWMOA webinar

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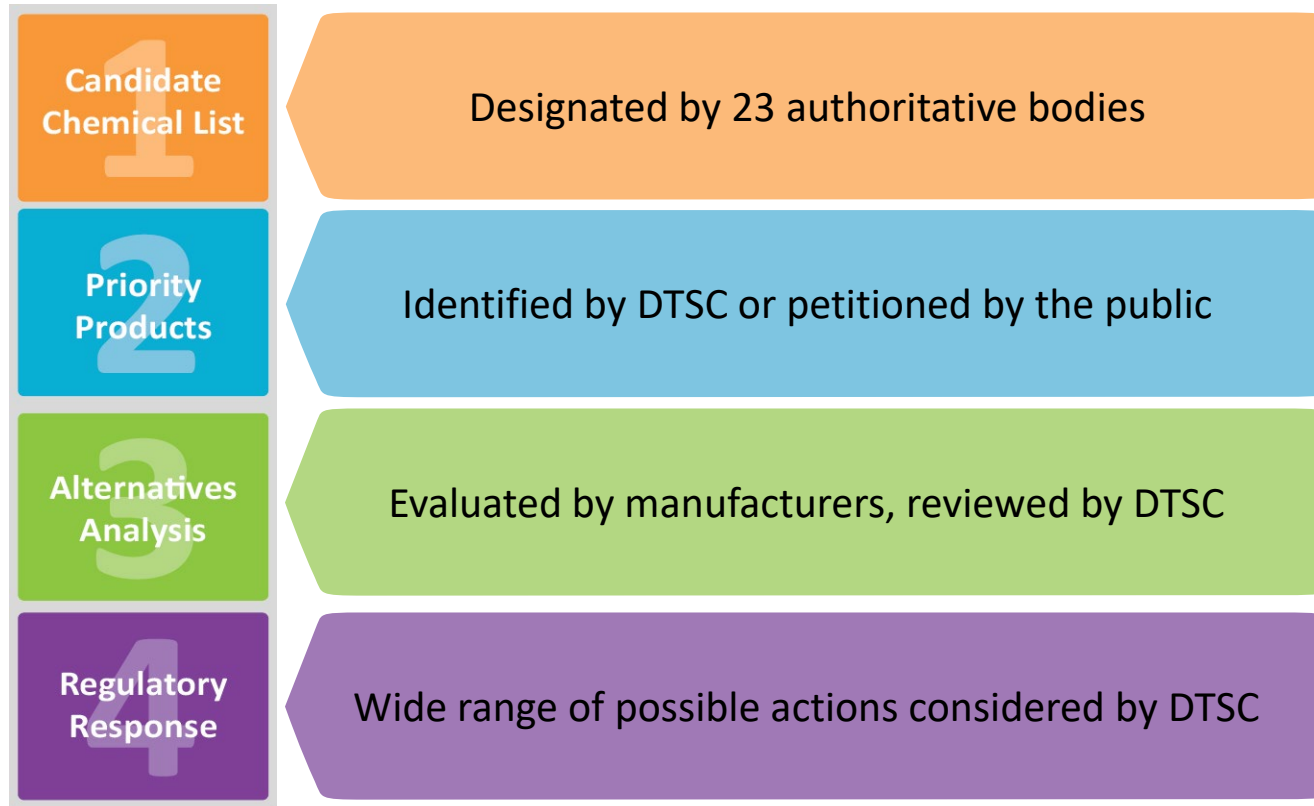


Department of Toxic Substances Control



Cal/EPA

The Safer Consumer Products (SCP) regulatory framework



Chemicals

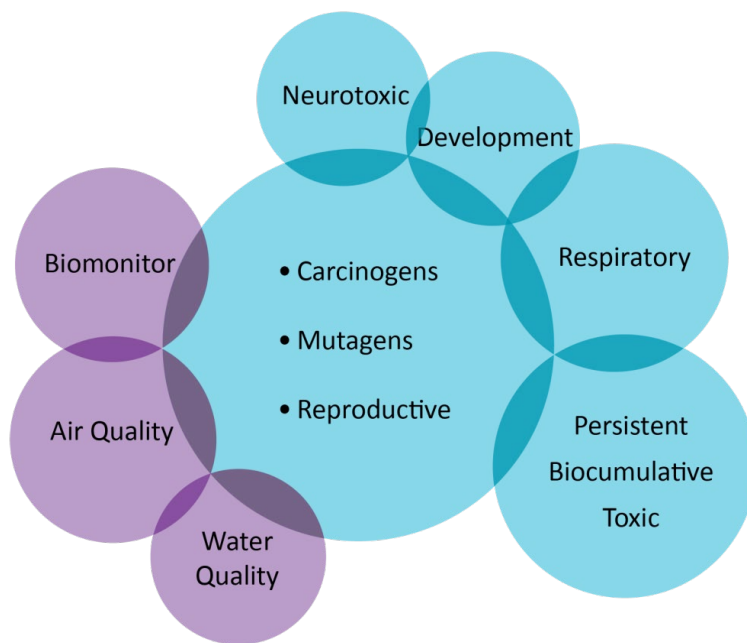
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Candidate
Chemical List

Our menu of options

23 authoritative lists

Exclusions:

- FIFRA pesticides
- Prescription drugs
- Radioactive chemicals
- Natural toxins



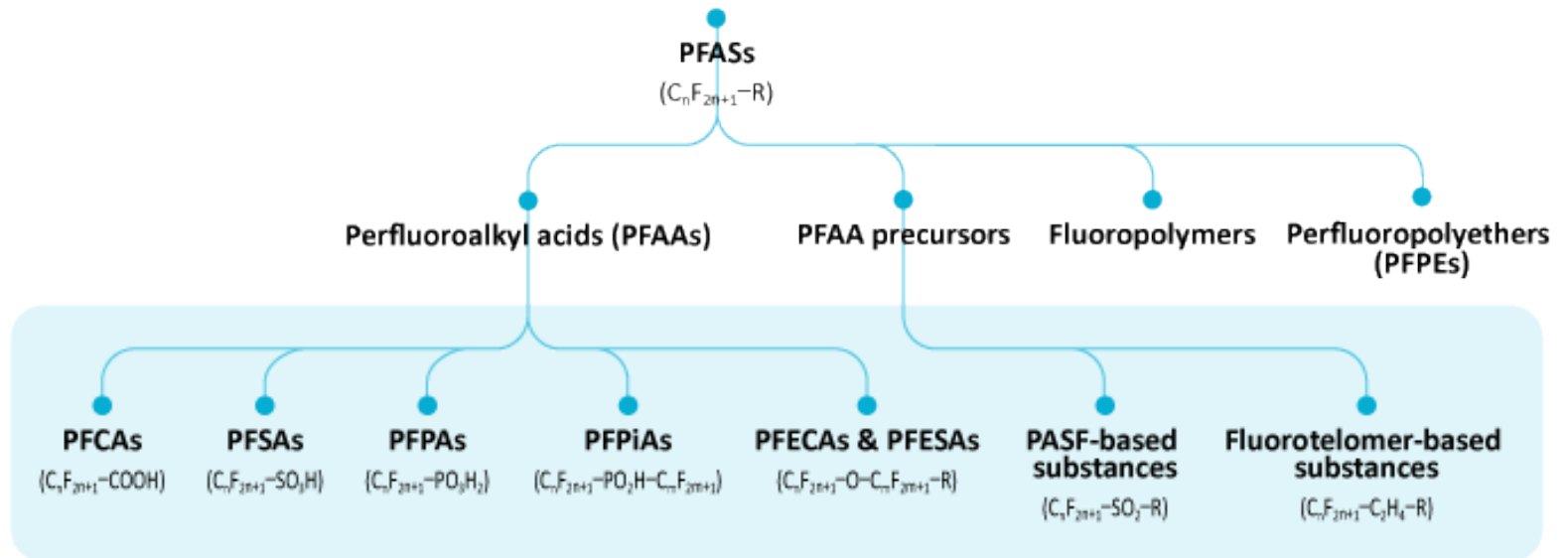
All PFASs* became Candidate Chemicals under the SCP regulations in 2015

The class is on the
Priority Chemicals list for

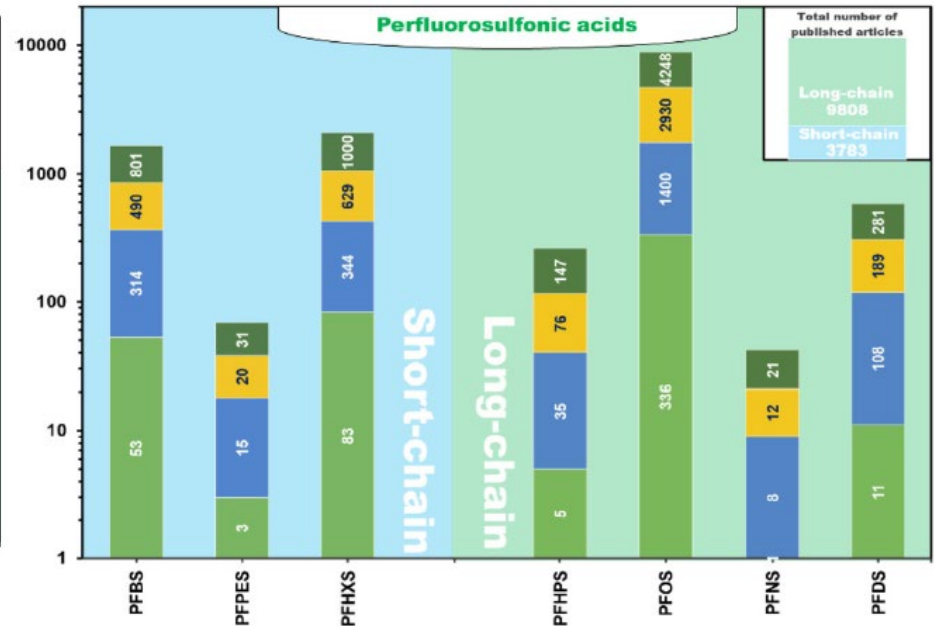
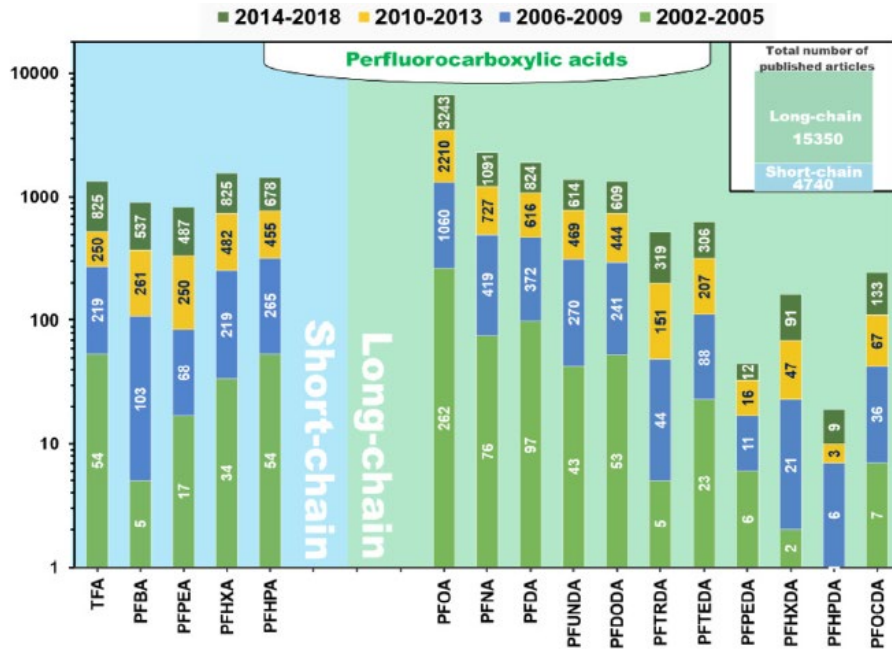
BIOMONITORING
CALIFORNIA



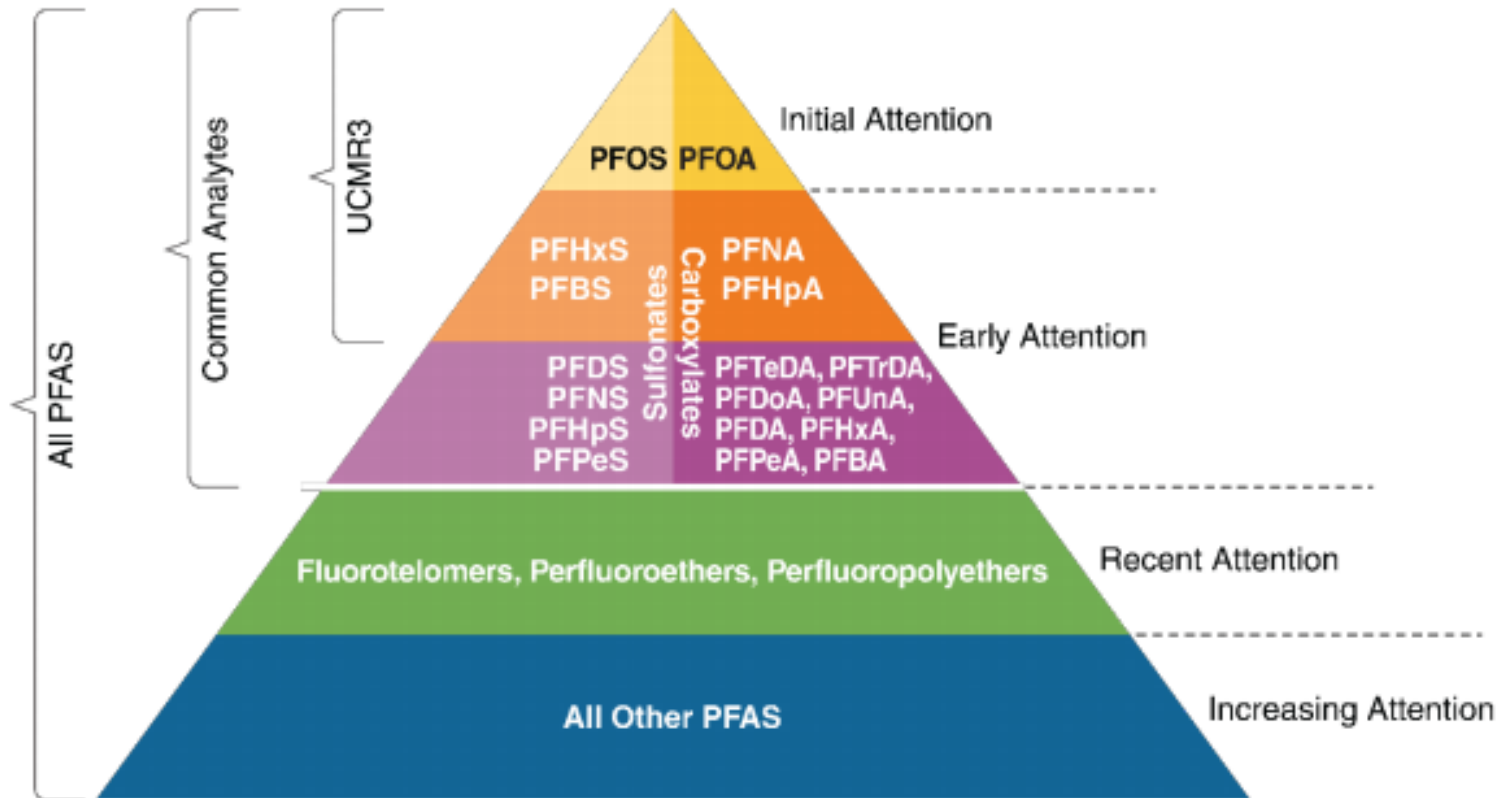
PFASs can be grouped into 4 main subclasses



Most research has been on longer-chain PFAs



Most PFASs cannot be quantified with current analytical methods



Thematic and not proportional. Bottom of triangle indicates additional number of compounds; not a greater quantity by mass, concentration, or frequency of detection.



SCP's product-chemical prioritization follows a narrative standard



There are potential **exposures** to a Candidate Chemical in the product

AND

One or more exposures have the potential to contribute to or cause **significant or widespread adverse impacts**



The 2018-2020 Work Plan Categories



Beauty, Personal Care, and Hygiene Products



Household, School, and Work Place Furnishings and Décor



Building Products and Materials Used in Construction and Renovation



Cleaning Products



Food Packaging



Consumable Office, School, and Business Supplies



Lead-Acid Batteries



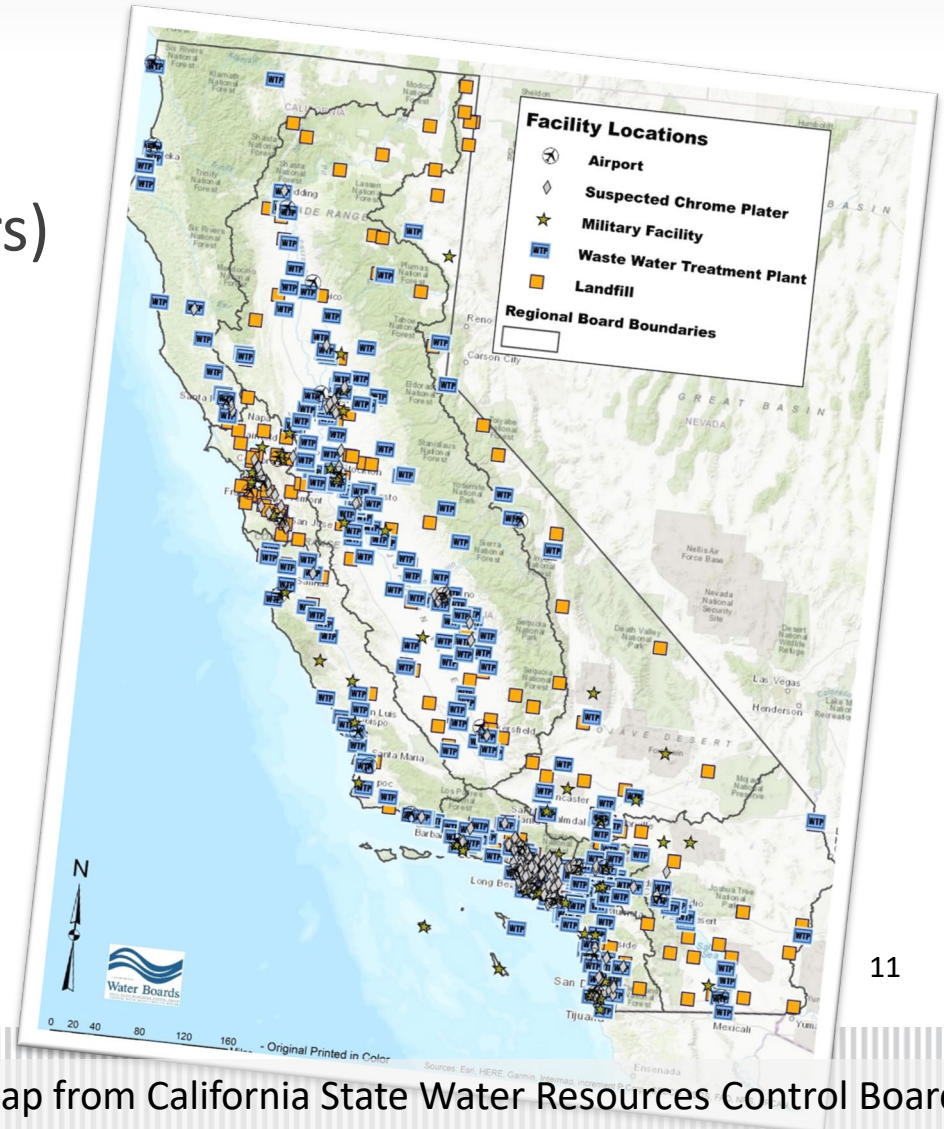
Exposure factors in the SCP regulations

- Market presence of the product
- The occurrence, or potential occurrence, of exposures to the Candidate Chemical(s) in the product
- The household or workplace presence of products containing the Candidate Chemical
- Potential exposures to the Candidate Chemical(s) in the product during the product's life cycle

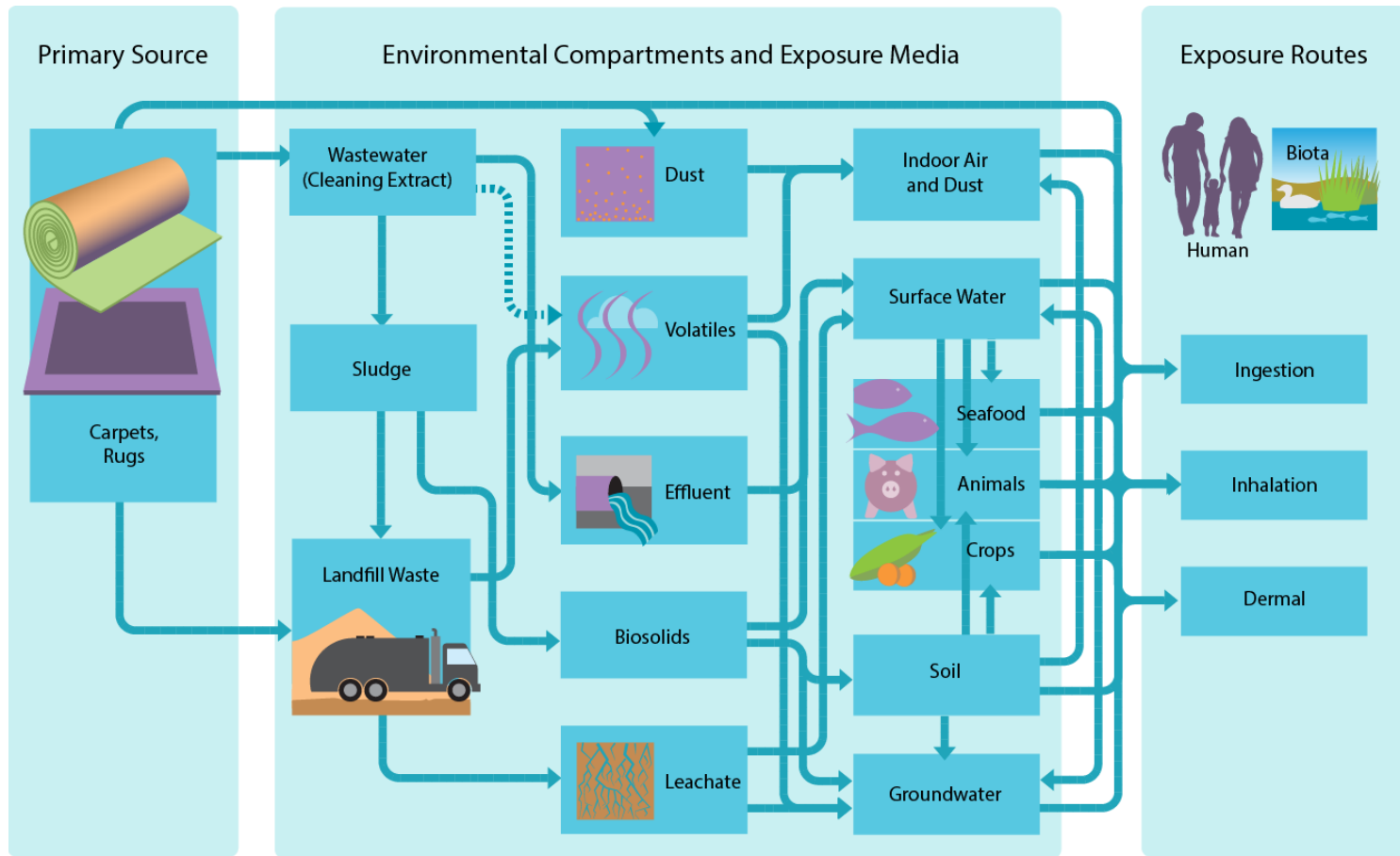


PFASs are ubiquitous

- Environmental media (indoors and outdoors)
- Plants, animals, and humans
- Food for human consumption
- Drinking water



Possible PFAS exposure pathways from the life cycle of carpets and rugs



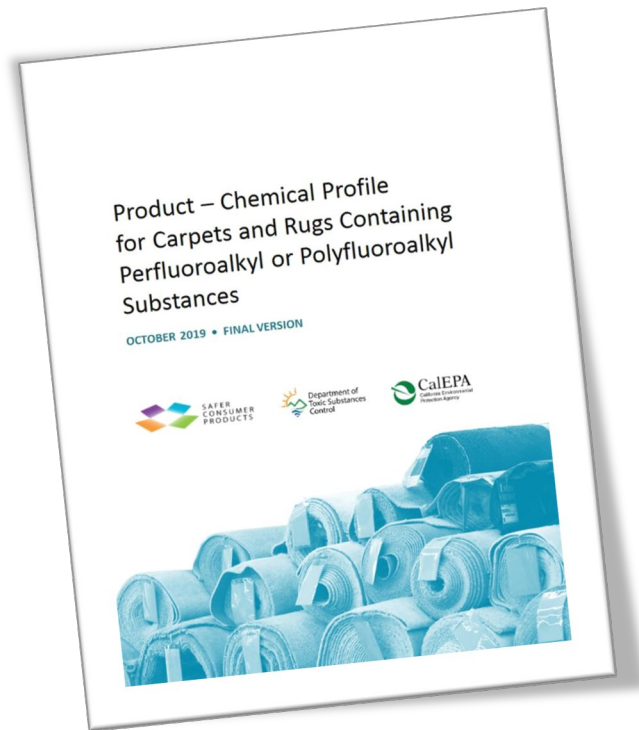
Carpets and rugs are significant PFAS exposure sources in California



- Carpets and rugs constitute more than half of the U.S. flooring market.
- *“Most residential and commercial carpets are treated”* with PFASs. (Yarbrough 2017)



Currently undergoing rulemaking

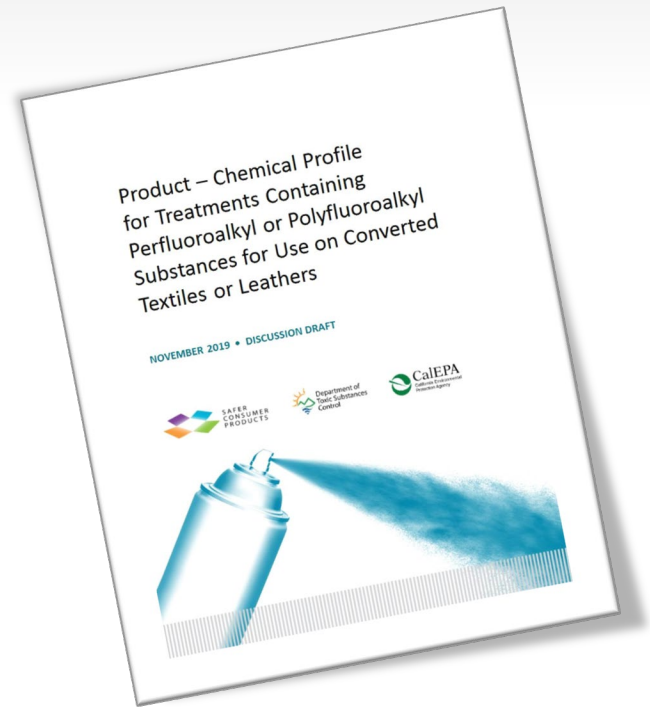


Carpets and rugs with perfluoroalkyl or polyfluoroalkyl substances (PFASs)



Other proposed Priority Products

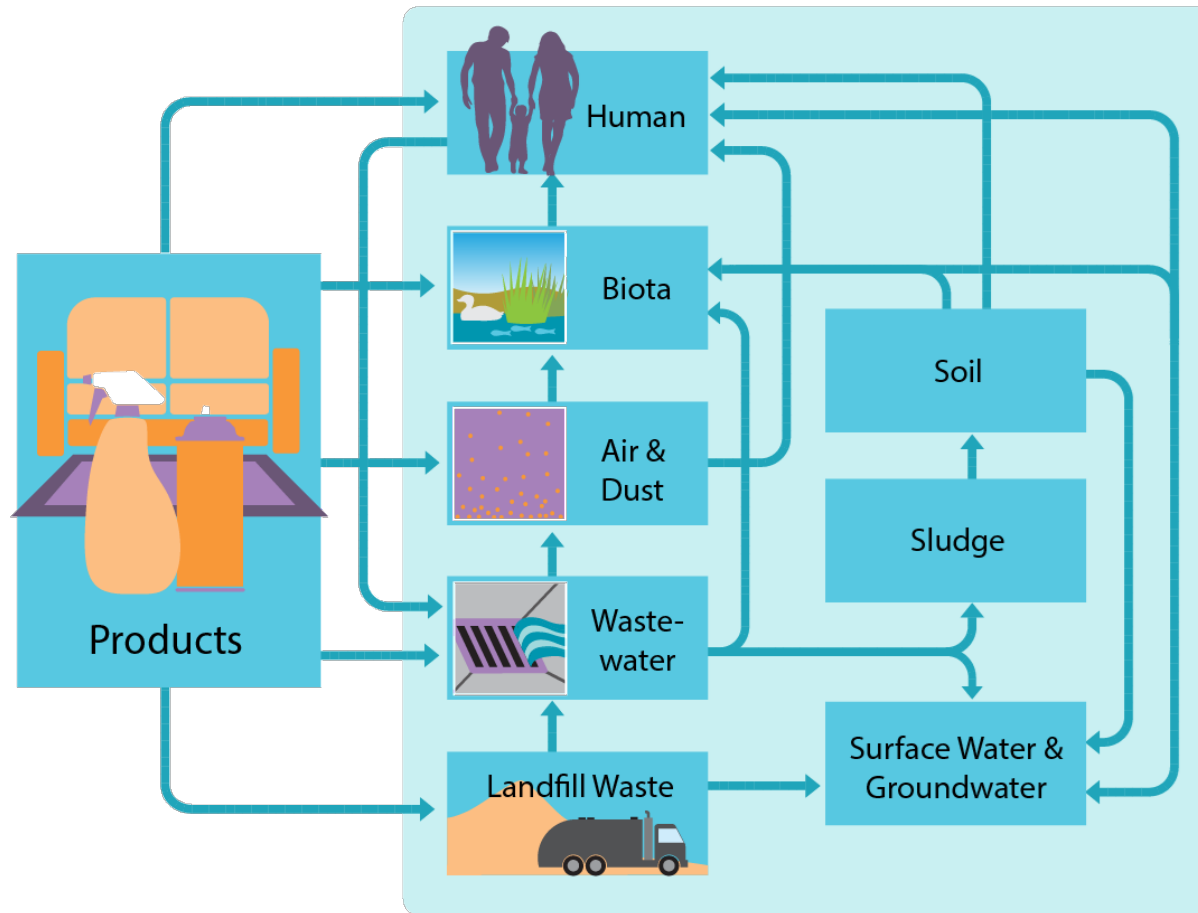
Treatments with PFASs for use on converted textiles or leathers



Plant fiber-based food packaging with PFASs



Possible PFAS exposure pathways from the life cycle of treatments for converted textiles and leathers



Possible PFAS exposure pathways from the life cycle of food packaging



Adverse impact factors in the SCP regulations

- Hazard traits (exposure potential, toxicological, environmental) and environmental or toxicological endpoints
- Aggregate effects
- Cumulative effects with other chemicals with the same or similar hazard traits or endpoints
- Physicochemical properties
- Environmental fate
- Hazard traits and endpoints of degradation, reaction, or metabolism products



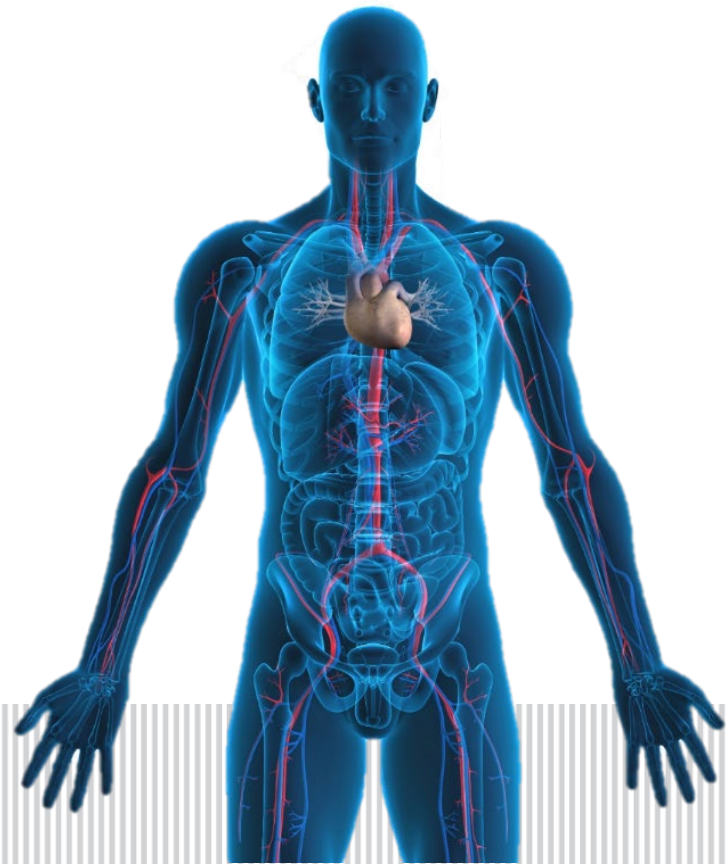
SCP regulations give special consideration to the most vulnerable

- Infants, children, pregnant women
- Elderly
- Workers and other high exposure populations
- People with certain preexisting conditions
- Threatened and endangered species
- Sensitive habitats and impaired environments



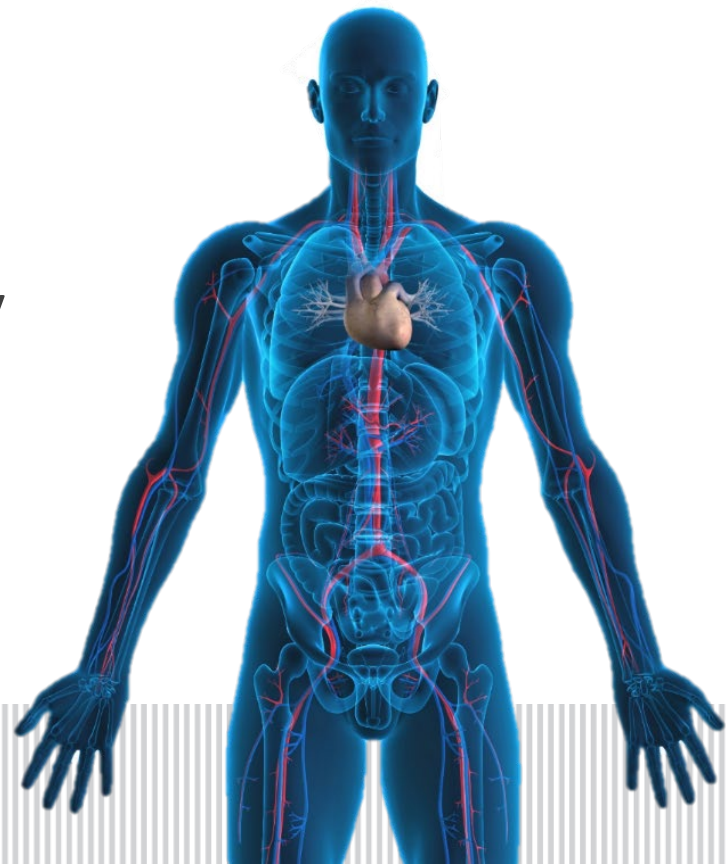
Known toxicological hazard traits of longer-chain PFAAs

- Developmental toxicity
- Carcinogenicity
- Cardiovascular toxicity
- Endocrine toxicity
- Immunotoxicity
- Reproductive toxicity



Emerging toxicological hazard traits of shorter-chain PFAAs

- Developmental toxicity
- Endocrine toxicity
- Hematotoxicity
- Hepatotoxicity
- Neurodevelopmental toxicity
- Ocular toxicity
- Reproductive toxicity



Environmental hazard traits

- Phytotoxicity
- Wildlife developmental, reproductive, and survival impairment



Exposure potential hazard traits

- Environmental persistence
- Mobility in the environment
- Bioaccumulation

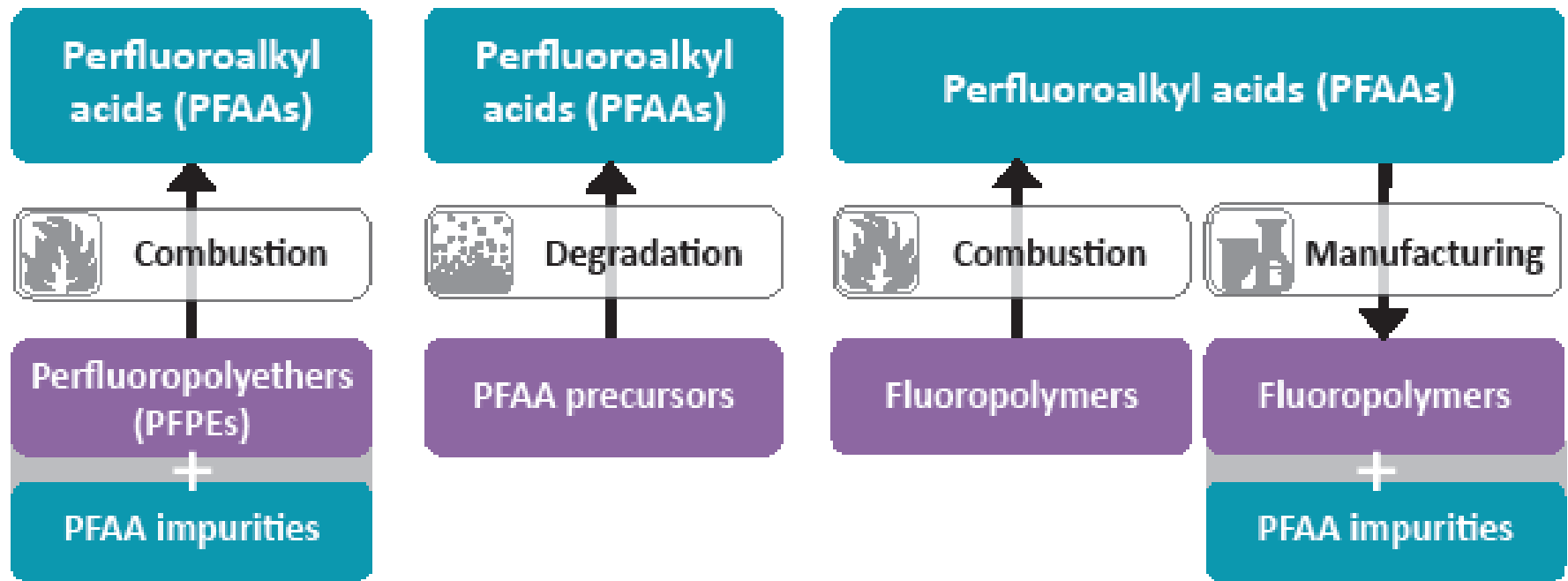


Exposure potential hazard traits

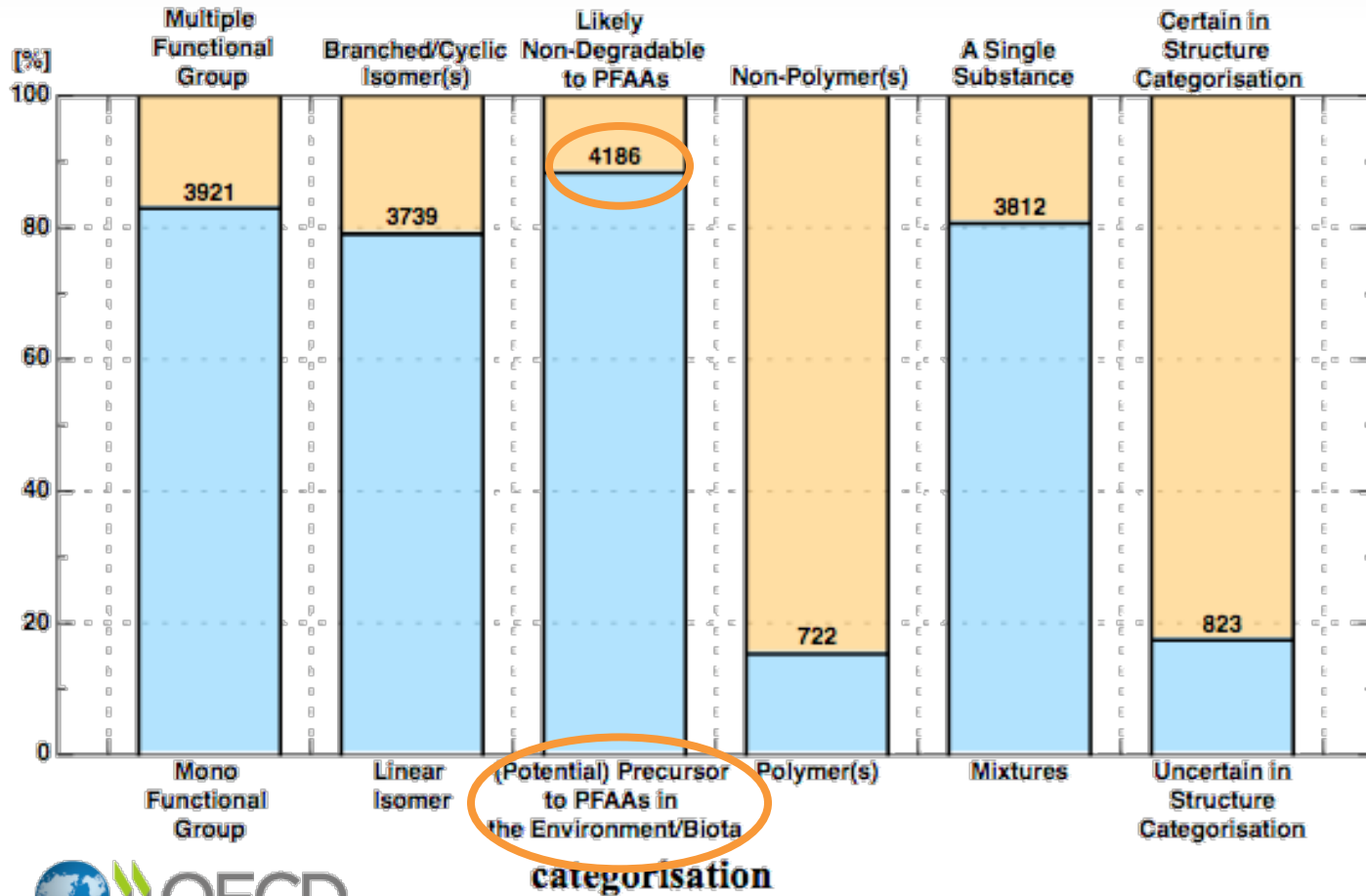
- Environmental persistence
- Mobility in the environment
- Bioaccumulation
- Lactational and transplacental transfer

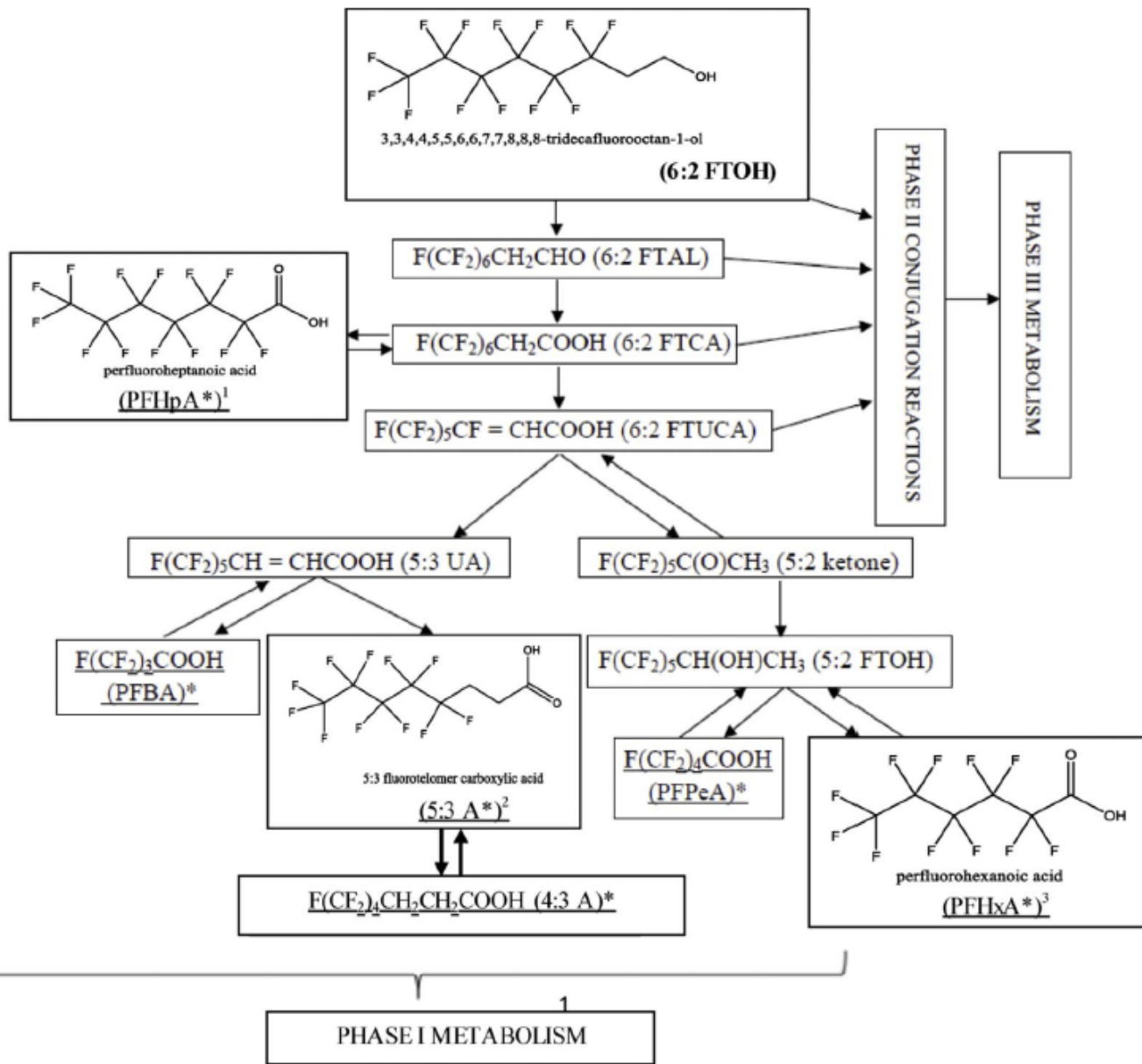


All PFASs or their degradation, reaction, or metabolism products are highly persistent



Over 80 percent of PFASs may degrade to PFAAs





Intermediates may have higher biopersistence and toxicity than the final degradation products



The P-sufficient approach

- “if a chemical is **highly persistent**, its continuous release will lead to **continuously increasing contamination** (...) [and] result in **increasing probabilities of the occurrence of known and unknown effects.**” (Cousins et al. 2019)
- Persistence is “**the most important single criterion affecting chemical exposure and risk** via the environment” (Mackay et al. 2014)
- “Because persistence is an inherent property of a chemical in the environment that results in increased exposure to the chemical and consequently potential for health risks, **it can appropriately be identified as a hazard trait.**” (OEHHA 2012)



Vol. 129, No. 2 | Commentary

Regulating PFAS as a Chemical Class under the California Safer Consumer Products Program

Simona Andreea Bălan , Vivek Chander Mathrani, Dennis Fengmao Guo, and André Maurice AlgaziPublished: 17 February 2021 | CID: 025001 | <https://doi.org/10.1289/EHP7431> Sections  PDF Tools  Share

Abstract

Background: Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a group of manmade chemicals containing at least one fully fluorinated carbon atom. The widespread use, large number, and diverse chemical structures of PFAS pose challenges to any sufficiently protective regulation, emissions reduction, and remediation at contaminated sites. Regulating only a subset of PFAS has led to their replacement with other members of the class with similar hazards, that is, regrettable substitutions. Regulations that focus solely on perfluoroalkyl acids (PFAAs) are ineffective, given that nearly all other PFAS can generate PFAAs in the environment.

Objectives: In this commentary, we present the rationale adopted by the State of California's Department of Toxic Substances Control (DTSC) for regulating PFAS as a class in certain consumer products.

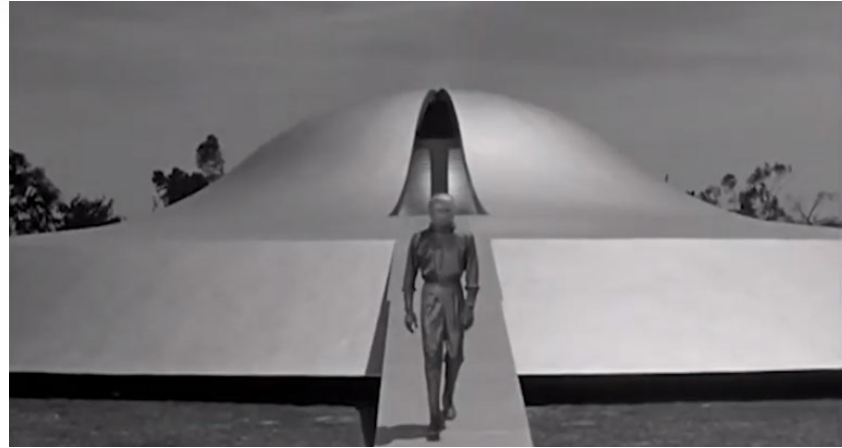
Discussion: We at the California DTSC propose regulating certain consumer products if they contain any member of the class of PFAS because: *a)* all PFAS, or their degradation, reaction, or metabolism products, display at least one common hazard trait according to the California Code of Regulations, namely environmental persistence; and *b)* certain key PFAS that are the degradation, reaction or metabolism products, or impurities of nearly all other PFAS display additional hazard traits, including toxicity; are widespread in the environment, humans, and biota; and will continue to cause adverse impacts for as long as any PFAS continue to be used. Regulating PFAS as a class is thus logical, necessary, and forward-thinking. This technical position may be helpful to other regulatory agencies in comprehensively addressing this large class of chemicals with common hazard traits.

<https://doi.org/10.1289/EHP7431>

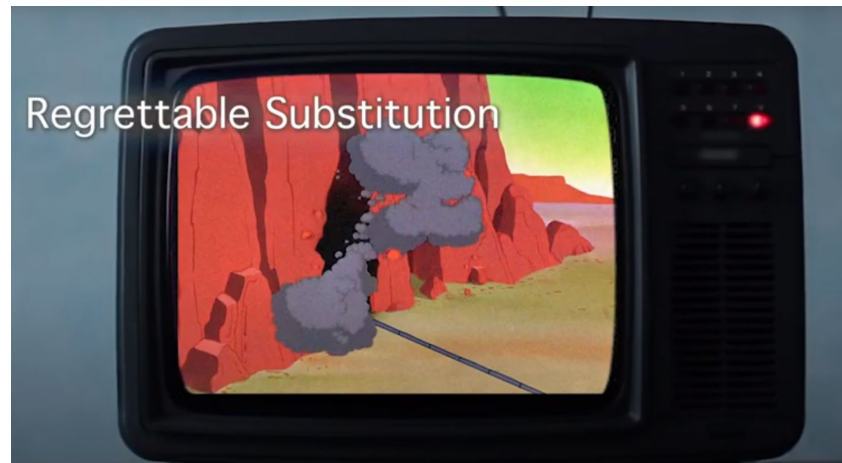


Check out our videos!

- <https://www.youtube.com/watch?v=E7-Nz6vTNSY&feature=youtu.be>



- <https://www.youtube.com/watch?v=-p-10cKblao>



Alternatives Analysis (Industry Step)

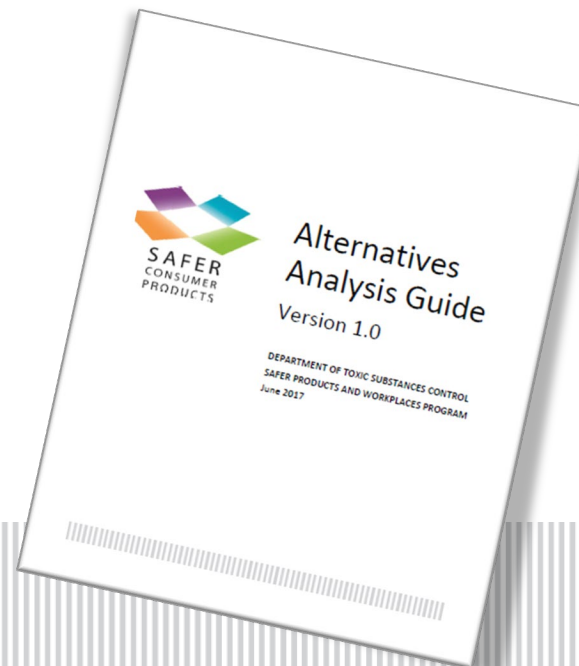
3 Alternatives Selection



The AA process seeks to avoid regrettable substitutions

Answers key questions:

- Is it necessary?
- Is there a safer alternative?
- What are the tradeoffs?



4 Regulatory Response

- Draft Regulatory Response proposed by DTSC
- Available for public comment
- Final Regulatory Response

The Regulatory Response is customized to each entity

Options include:

- No response
- Additional info to DTSC
- Additional info to consumers
- Additional safety measures
- Sales restrictions/prohibitions
- End-of-life product stewardship
- Research funding



Thank you!

Contact me: simona.balan@dtsc.ca.gov

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