

PFAS – The Evolving Landscape

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Innovative Products For **Home. Work. Life.**

Overview

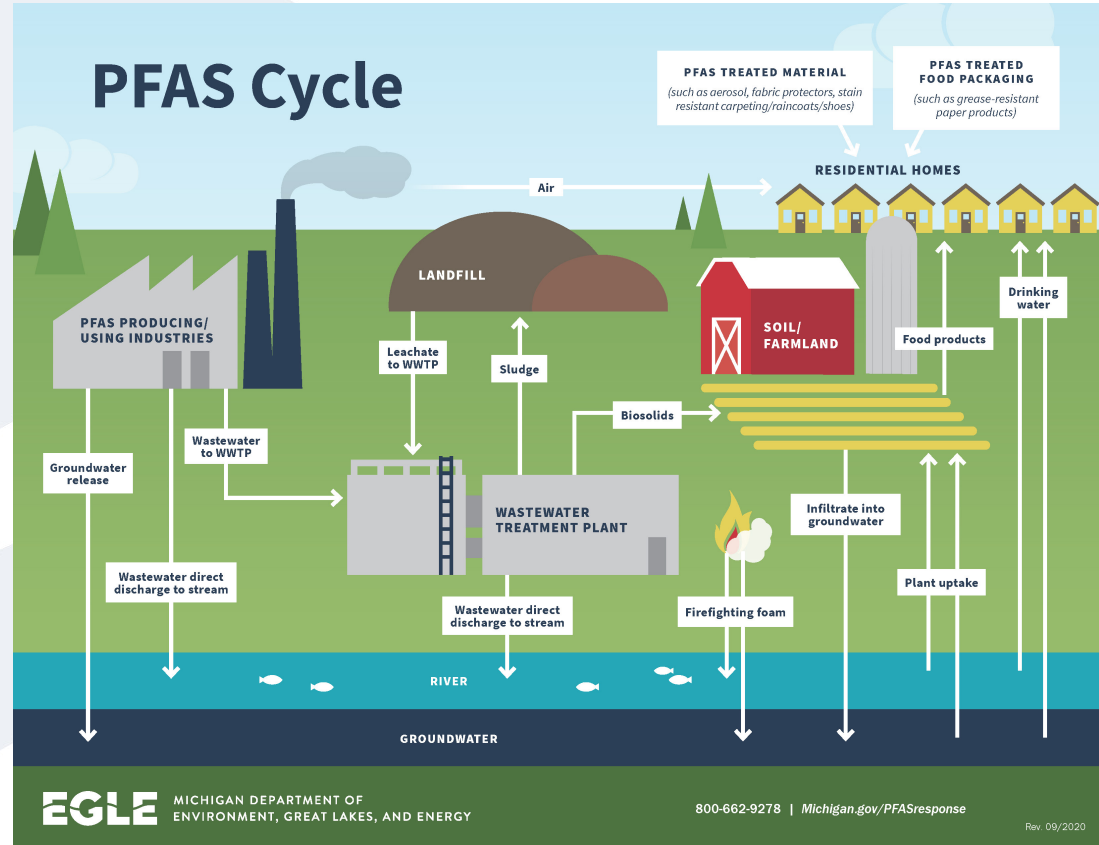


- Evolving and Expanding PFAS Activity
- Why Maine and What is PFAS?
- Fluorinated Packaging
- Federal Activity
- State Product-Based PFAS Activity
- Testing Limitations

Why Maine?



- PFAS-Contaminated Sludge/biosolids
- Fluorinated Packaging



Fluorinated Packaging - Timeline



- Detection of PFAS in mosquito control products by NGO in late 2020
- Testing of leaching process by one manufacturer of fluorinated HDPE
- Determination that the source was fluorinated packaging in early 2021
- EPA encourages product stewardship to identify potential sources of PFAS and reminds that impurities require adverse reporting
- EPA asserts that fluorination process is covered by TSCA Section 5 Long-Chain PFAS Significant New Use Rule and issues orders in late 2023
- Manufacturer petitions EPA in 5th Circuit that their 40-year-old process is not a new use (HCPA joined an amicus brief in support of petition)
- The EPA orders were vacated in March 2024
- Other authorities (FIFRA enforcement, TSCA Sect. 6) remain
- [Recent podcast by Chemical Watch](#)

What is a PFAS?

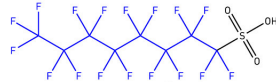


- [Buck](#) definition - aliphatic substances with the moiety $-C_nF_{2n+1}$ where n is at least 1
- [OECD](#) - *PFASs are defined as fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it)*
- EPA definitions
 - Focused on individual PFAS (PFOA, PFOS, GenX, about 40 discrete substances)
 - per- and polyfluorinated substances that structurally contain the unit $R-(CF_2)-C(F)(R')R''$. Both the CF_2 and CF moieties are saturated carbons and none of the R groups (R, R', or R'') can be hydrogen
- ME, MN, CO, CA, MD - a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom
- DE, [WV](#) - nonpolymeric perfluoroalkyl and polyfluoroalkyl substances that are a group of man-made chemicals that contain at least two fully fluorinated carbon atoms, excluding gases, and volatile liquids

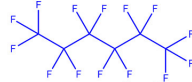
Differing PFAS Definitions



Examples of PFASs that already meet the definition by Buck et al. (2011)*



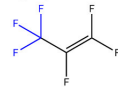
perfluorooctanesulfonic acid (PFOS)
Chemical Abstracts Service Registry Number (CASRN) 1763-23-1



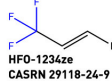
perfluorohexane
CASRN 355-42-0



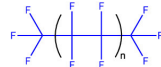
perfluoromethane
CASRN 75-73-0



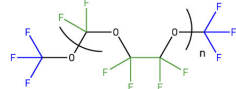
hexafluoropropylene (HFP)
CASRN 116-15-4



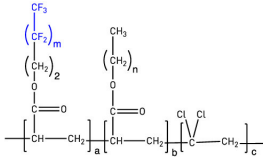
HFO-1234ze
CASRN 29118-24-9



an example of
polytetrafluoroethylene (PTFE)
CASRN 9002-84-0



an example of perfluoropolyethers (PFPEs)



an example of side-chain
fluorinated polymers (SCFPs)

* **Blue** moieties = fully fluorinated alkyl moieties that already meet the definition by Buck et al. (2011); **green** moieties = fully fluorinated alkanediyl moieties that are added under the new OECD definition; **orange** moieties = aromatic rings

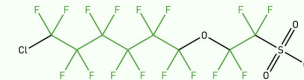
Examples of PFASs that are added under the new OECD definition*



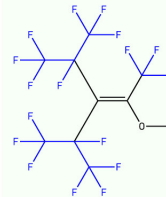
perfluorocyclohexanesulfonic acid
CASRN 2106-55-0



CASRN 13846-22-5



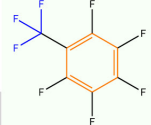
CASRN 756426-58-1



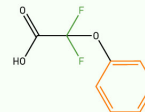
CASRN 271794-15-1



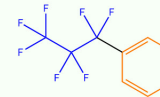
Fipronil
CASRN 120068-37-3



perfluorotoluene
CASRN 434-64-0

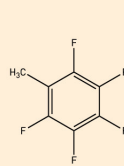


CASRN 24210-45-5

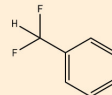


[perfluoropropyl]benzene
CASRN 378-98-3

Examples of substances that are NOT PFASs



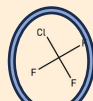
CASRN 771-56-2



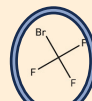
CASRN 455-31-2



trifluoromethane
CASRN 75-46-7



CASRN 75-72-9



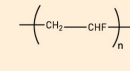
CASRN 75-63-8



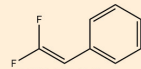
CASRN 2314-97-8



difluoromethane
CASRN 75-10-5



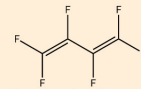
polyvinyl fluoride (PVF)



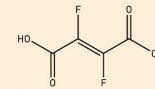
CASRN 405-42-5



tetrafluoroethylene (TFE)
CASRN 116-14-3



hexafluorobutadiene
CASRN 685-63-2



CASRN 685-64-3

EPA CompTox
Chemicals
Dashboard

Contains many
lists of PFAS
substances

Meet fully
fluorinated carbon
definition

Federal Activity



EPA

- [PFAS Strategic Roadmap](#)
- FIFRA
 - Active Ingredients
 - Adulterated products
 - Removal of inerts containing PFAS
- TSCA
 - One-time reporting rule that will require many companies to determine whether they have manufactured, including imports, any PFAS over the past 13 years and report accordingly.
- CERCLA – Classification of PFOA and PFOS as hazardous waste
- SDWA - Drinking water (PFOA and PFOS at low ppt levels)

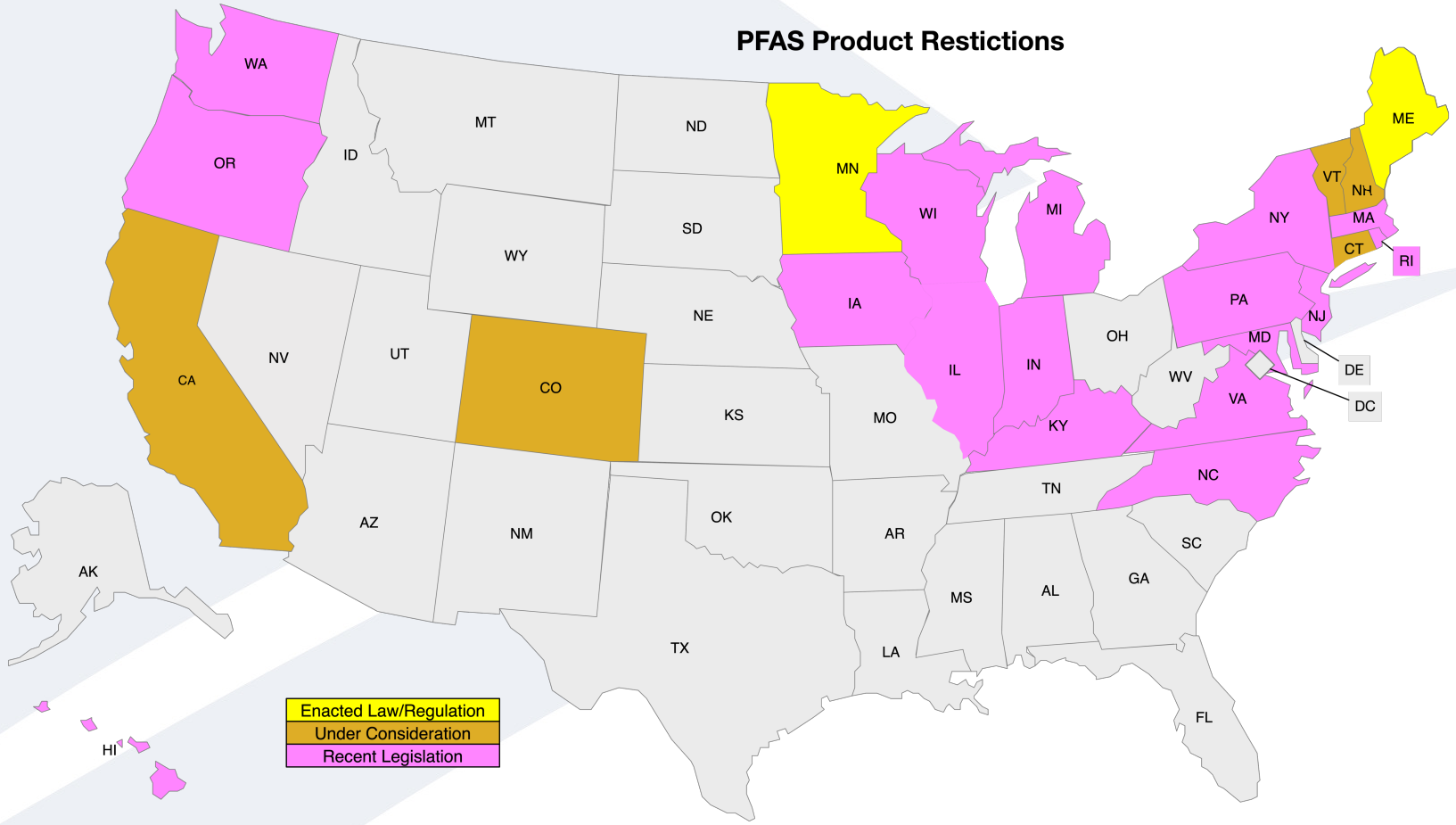
GSA PFAS-Free Purchasing

DOD Procurement Restrictions

Evolving and Expanding PFAS Activity



PFAS Product Restrictions



State Product-based PFAS Activity



Focus has been on AFFF, cleaning products, ski waxes, waterproof clothing with phased-in prohibitions

Maine (Revised 4/2024)

- Effective date now January 1, 2032
- Exemptions (of pesticide interest)
 - Veterinary products intended for use in or on animals, including diagnostic equipment or test kits and their components and any product that is a veterinary medical device, drug, biologic or parasiticide or that is otherwise used in a veterinary medical setting or in veterinary medical applications regulated under FDA, USDA and FIFRA (except aerial or land application FIFRA products)
 - A product developed or manufactured for the purposes of public health, environmental or water quality testing
- The Reporting law
 - Requirement to report active ingredients and usage of fluorinated packaging

Minnesota

- Effective January 1, 2032
- Reporting requirements January 1, 2026

Colorado

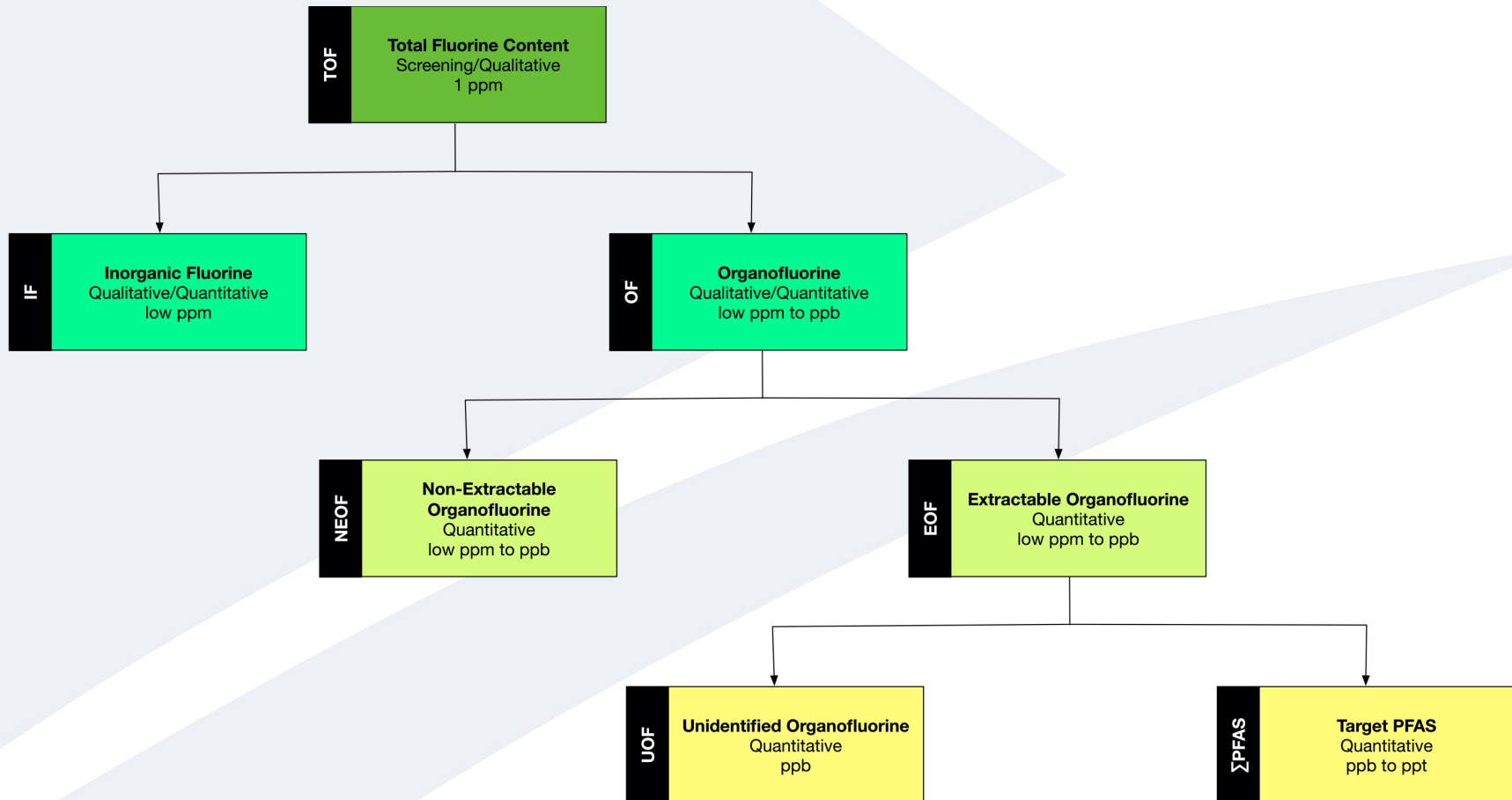
- Legislation passed bill, awaiting governor's signature
- Effective January 1, 2032, prohibit the sale or distribution of any nonexempted product that contains intentionally added PFAS chemicals
- Exemptions include Veterinary pesticide and parasiticide products approved by the Federal Environmental Protection Agency or the Federal Department of Agriculture for use in animals

Currently Unavoidable Uses (CUUs)



- Maine and Minnesota have had rule-making to determine currently unavoidable uses of per- and polyfluoroalkyl substances (PFAS) in products
- Defined "Essential for health, safety or the functioning of society" means a use of a PFAS in a product when the function provided by the PFAS is necessary for the product to perform as intended, such that the unavailability of the PFAS for use in the product would cause the product to be unavailable, which would result in:
 - 1) A significant increase in negative health outcomes;
 - 2) An inability to mitigate significant risks to human health or the environment; or
 - 3) A significant disruption of the daily functions on which society relies.
- Establish criteria to make decisions on which, if any, uses of intentionally added PFAS remain allowable

Testing Limitations



Wrap up – PFAS Remains In Flux



- In just the past month, ME, CO, SDWA and RCRA actions
- State activity moves faster than EPA
- Scrutiny and uncertainty remain in fluorinated packaging space
 - Switching to other protective packaging takes time
 - Conversations with supply chain essential
- Know your product, processes and packaging
 - Talk to suppliers

Questions?



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