

1:00 PM - 2:00 PM

The Latest on Efforts to Address PFAS Water Contamination

## Forever & Everywhere—

# PFAS



## What are PFAS ?

Per- and polyfluoroalkyl substances

Category of over 4000 man-made chemical compounds.

PFAS repel oils, stains, and water; they are effective flame retardants.

PFAS have strong chemical bonds and do not breakdown easily.

Not all 4000-9000 PFAS can be measured or traced

Most studied and regulated are PFOA & PFOS.



## Love-Hate Relationship!







# Sources of PFAS In





SCOTO GARL

# **Our Lives**

















# Sources of PFAS for Landfills



## **Sources of PFAS for Wastewater**







## **Sources of PFAS in the Environment**

## Regulatory changes & Research

CHANGE AHEAD

#### **PFOA/PFOS Drinking Water Standards = 70 ppt**

"Systems that exceed the MCL standards for PFOA and PFOS will be required to take measures to return to compliance, which may include drilling a new well or installing a treatment system."

#### **Surface Water Standards**

<u>PFOS</u> = 8 ppt for all surface waters (few exceptions)

#### $\underline{\mathsf{PFOA}} =$

20 ppt for surface waters deemed part of public water supply

95 ppt for all other surface waters

"If facilities exceed standards, the agency will work with permitted facilities to reduce PFAS to avoid costly treatment. Those facilities will have up to seven years to implement plans to minimize PFAS levels."

#### PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024



#### NEW Proposed Hazardous Substance Designation for PFOA and PFOS

On August 26, 2022, EPA issued a proposal to designate two of the most widely used PFAS as hazardous substances under CERCLA, or Superfund. This rulemaking would increase transparency around releases of these harmful chemicals and help to hold polluters accountable for cleaning up their contamination.



#### EPA Selects Recipients of Nearly \$12 Million in Pollution Prevention Grants Funded by the Bipartisan Infrastructure Law

Proposed projects include reducing PFAS contamination in <u>food</u> <u>packaging and food waste recycling streams</u>, increasing awareness of green cleaning chemicals in businesses and schools, and helping underserved communities implement P2 best practices to reduce waste and emissions from industrial plants.



# Treatment & Destruction Technologies

# Treatment systems only sequester PFAS keeping them in a cycle of disposal

"The stability and <u>surfactant</u> nature of PFAS make many treatment technologies ineffective…even technologies such as thermal treatment and chemical oxidation may not be completely effective at treating PFAS." https://pfas-1.itrcweb.org/12-treatment-technologies/#12\_1

### **Granulated Activated Carbon**

## Ion Exchange

#### **Reverse Osmosis**

#### Ultrafiltration

Low-temperature mineralization of perfluorocarboxylic acids

... the researchers discovered that a combination of sodium hydroxide & dimethyl sulfoxide... was able to destroy "forever" chemicals when heated to between 175-250°F.

Zimpro Electro Oxidation (ZEO) is the first commercially available comprehensive PFAS destruction solution to bridge the gap between current approaches and a sustainable environment.

## Take the "F" Out



## What can people do to protect themselves?



# Don't be fooled



#### **Be informed**

#### **Do research**

Evaluate use of online resources to sort out the complexities of ingredients.

Environmental Working Group "Skin Deep®" database

https://www.ewg.org/skindeep/

Green Science Policy Institute (GSPI) <u>https://greensciencepolicy.org/harmful-</u> <u>chemicals/pfas/</u>





Section 1. [325F.075] FOOD PACKAGING; PFAS.

No person shall manufacture, knowingly sell, offer for sale, distribute for sale, or distribute for use in Minnesota a food package that contains intentionally added PFAS.



#### **Essential-Use Concept**

Funding/Support for PFAS (SWDA) and Impacted Municipalities

#### Fund Research: Move Past Bench/Pilot Testing to Full-Scale

#### Fate & Transport Studies

PFAS in leachate

PFAS in biosolids when land applied

#### **Destructive Technologies Studies**

Mechanochemical Degradation

Super Water Oxidation

Electro-Oxidation

Pyrolysis/gasification

# Make Voluntary **Testing Less** Scary: **Incentivize**...







Consider Brownfield Redevelopment Model

#### **Concluding thoughts**

To fix this issue a holistic approach is needed to address the production and use of these chemicals. It will need:

Regulatory action.

- Funding for assessment, treatment, mitigation, and remediation.
- Phasing out use of PFAS by manufacturers.
- Successful and cost-effective destruction technologies.