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# EPA What's New That You Need to Know About

## AGENDA

INTRODUCTION

FOREVER CHEMICALS

ROUTES OF ENTRY & EXPOSURE

REPORTING REQUIREMENTS

CONCLUSION

# INTRODUCTION

The EPA is evolving. The focus of the EPA changes based on various threats to the environment and public health. This lecture does not cover all recent changes and users should consult the EPA for official guidance. This lecture is for informational purposes and should not be used to make determinations about waste characterization, treatment, or disposition.

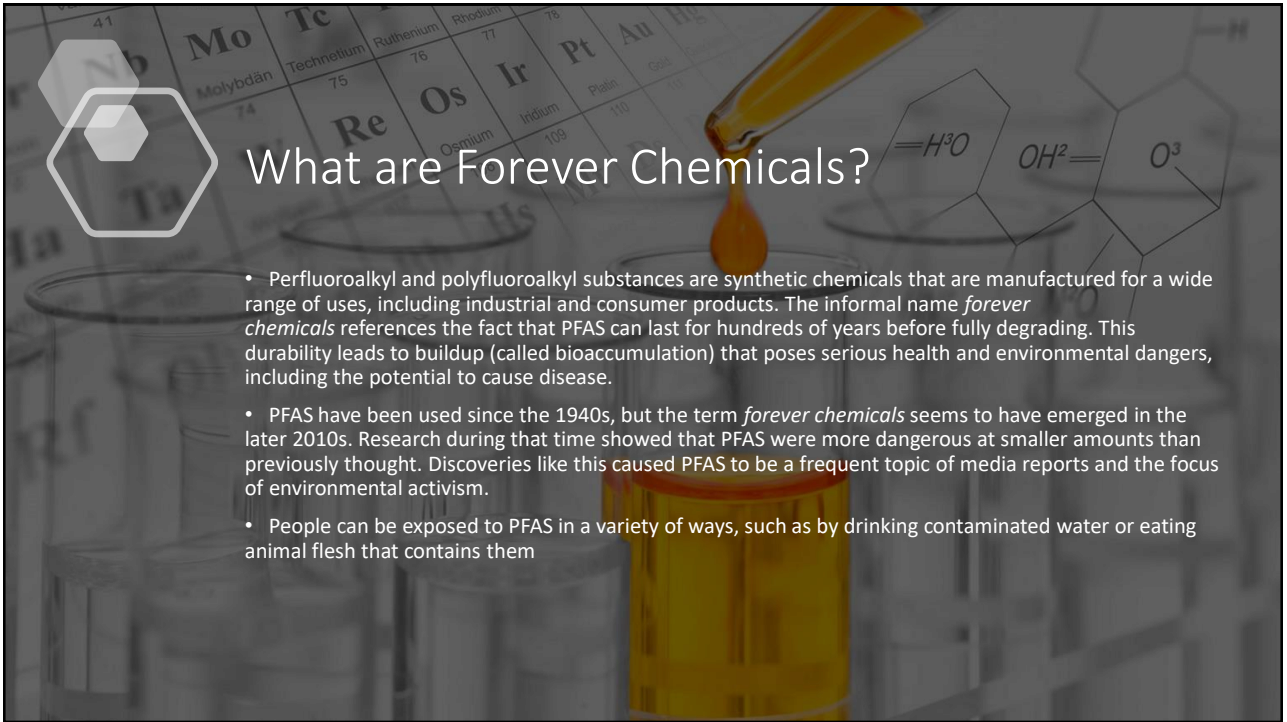
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## PRIMARY GOALS

- Understanding forever chemicals
- Identifying materials that may contain forever chemicals
- How to manage forever chemicals
- Is there an end in sight?
- Regulatory approach to managing forever chemicals



## What are Forever Chemicals?

- Perfluoroalkyl and polyfluoroalkyl substances are synthetic chemicals that are manufactured for a wide range of uses, including industrial and consumer products. The informal name *forever chemicals* references the fact that PFAS can last for hundreds of years before fully degrading. This durability leads to buildup (called bioaccumulation) that poses serious health and environmental dangers, including the potential to cause disease.
- PFAS have been used since the 1940s, but the term *forever chemicals* seems to have emerged in the later 2010s. Research during that time showed that PFAS were more dangerous at smaller amounts than previously thought. Discoveries like this caused PFAS to be a frequent topic of media reports and the focus of environmental activism.
- People can be exposed to PFAS in a variety of ways, such as by drinking contaminated water or eating animal flesh that contains them

What  
Products  
Contain  
Forever  
Chemicals?

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## What Is The Purpose of Forever Chemicals

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- Non Stick Coatings
- Water, Heat, and Oil Resistance
- Personal Product Additive
- Cleaning Products
- Industrial Coatings
- Paints, Varnishes, Sealants
- Upholstery

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## What is a forever chemical?

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- The EPA has released a list of 160 “forever chemicals” that companies and federal facilities must for the first time report to the agency’s Toxics Release Inventory.
- The per- and polyfluoroalkyl substances, or PFAS, met specific criteria included in the 2020 National Defense Authorization Act (NDAA). No PFAS were included on the Toxics Release Inventory (TRI) prior to the defense authorization act.
- Companies or federal facilities that release 100 or more pounds of the PFAS must collect information this year detailing the amount getting into the air, water, or land, and the quantities managed through disposal, energy recovery, recycling, or treatment.
- The law specifically named more than a dozen PFAS, which are among the 160 on the list, including well-known ones that states are increasingly finding in drinking water and on land, such as:
  - perfluorooctanoic acid and its salts (PFOA),
  - perfluorooctane sulfonic acid and its salts (PFOS),
  - hexafluoropropylene oxide dimer acid (GenX),
  - perfluorononanoic acid (PFNA), and
  - perfluorohexanesulfonic acid (PFHxS).



## How Can I Tell If A Product Contains Forever Chemicals?

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- Manufacturers aren't required to identify PFAS on labels
- Avoid cosmetics and products that use words like "waterproof" or "long-wear."
- If an ingredient starts with 'perfluor' that's a red flag
- Out of 231 products screened, foundations (63%), eye products (58%), lip products (55%) and mascaras (47%) were among those containing fluorine, an indicator the product has PFAS.

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## Routes of Entry

- Air, Soil, Water
- Bioaccumulation through the food chain
- Inhalation, Ingestion, Absorption

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PRESENTATION TITLE

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## Exposure Concerns

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Elevated Cholesterol

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Cardiac Complication

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Hormone Disruption

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Testicular Cancer

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Thyroid Disease

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Kidney Cancer

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Ulcerative Colitis

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Low Birth Weight

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Information from C8 Probable Link Report

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PRESENTATION TITLE

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## Generator Management & Reporting

TRI tracks the management of certain toxic chemicals that may pose a threat to human health and the environment. U.S. facilities in different industry sectors must report annually how much of each chemical is released to the environment and/or managed through recycling, energy recovery and treatment

Facilities that report to TRI are typically larger facilities involved in manufacturing, metal mining, electric power generation, chemical manufacturing and hazardous waste treatment. Not all industry sectors are covered by the TRI Program, and not all facilities in covered sectors are required to report to TRI.

Congress originally determined the industry sector scope of TRI, requiring reporting by facilities in the manufacturing sectors, as defined by Standard Industry Classification (SIC) codes 20 through 39. Congress also granted the EPA Administrator the authority to add sectors to or delete sectors from the scope of TRI. Via such authority, EPA added seven industry sectors in 1997 and natural gas processing facilities in 2021.

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PRESENTATION TITLE

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The flowchart starts with a decision: 'Does your facility have 10 or more full-time employees or the equivalent?' (see 8.0.2 in Table 1). If YES, it asks 'Is your facility's primary NAICS Code included on the EPCRA Section 313 list OR is your facility a Federal facility?' (see 8.0.2 in Table 1). If YES, it asks 'Does your facility manufacture, process, or otherwise use EPCRA Section 313 chemicals and chemical categories?' (see 8.0.2 in Table 1). If YES, it asks 'Does your facility exceed any of the thresholds for a chemical or chemical category (after excluding quantities that are exempt from threshold calculations)?'. If YES, it asks 'AN EPCRA SECTION 313 REPORT IS REQUIRED FOR THE CHEMICAL OR CHEMICAL CATEGORY'. If YES, it asks 'Is this chemical or chemical category defined as a chemical of special concern?'. If YES, it asks 'FORM R IS REQUIRED FOR THIS CHEMICAL OR CHEMICAL CATEGORY (FORM A CANNOT BE SUBMITTED)'. If YES, it asks 'Will your facility claim trade secret for this chemical or chemical category?'. If YES, it says 'SUBMIT PAPER FORM R OR FORM A AND TRINDS SECRET SUBSTITUTION FORMS' (see A.3). If NO, it says 'SUBMIT THE FORM R OR FORM A FOR THIS CHEMICAL ELECTRONICALLY VIA TRIMeWeb'. If NO at any point, it says 'STOP NO EPCRA SECTION 313 REPORTS REQUIRED FOR ANY CHEMICALS'. If YES at the 'amount manufactured' question, it says 'FORM A OR FORM R IS REQUIRED FOR THIS CHEMICAL OR CHEMICAL CATEGORY'. If NO, it says 'FORM R IS REQUIRED FOR THIS CHEMICAL OR CHEMICAL CATEGORY (FORM A CANNOT BE SUBMITTED)'.

# Generator Reporting Decision Tree

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PRESENTATION TITLE
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Reporting Form

Element Name	Module	Schema File Name	Description	XML Data Type	Required?	Schema Validation	Business Rule	SSC File Name	SSC Data Element/Type	SSC Reuse Type	Object Class Qualifier	Object Class	Property Term Qualifier	Property Term	Representation Term	Target System Table	Target System Field	Source System Table	Source System Field
TR	NA	TR_TR_v6.1.xsd	Root element	TRData Type	Y	complex type	NA	NA											
Submission	TR	TR_TR_v6.1.xsd	A container for one or more TR Reports for a given facility.	SubmissionData Type	Y	complex type	NA	NA											
TRSubmissionIdentifier	Submission	TR_TR_v6.1.xsd	A number used to uniquely identify a TR submission, which contains data for one facility and one or more chemicals.	SubmissionIdentifierData Type	N	substituting attribute	NA	NA											
Facility	Submission	TR_Facility_v6.1.xsd	Facility identification data.	FacilityData Type	N	complex type	NA	NA											
FacilityIdentifier	Facility	TR_Facility_v6.1.xsd	A unique number assigned to the facility. The context attribute indicates which system the identifier refers to, such as TR or PCL.	FacilityIdentifierData Type	N		See CIM 2 documentation for description.	NA	SC_SimpleContent_v6.0.xsd										

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## Forever Chemicals and RCRA

EPA announced the initiation of two rulemakings. First, the agency will initiate the process to propose adding four PFAS chemicals as RCRA Hazardous Constituents under Appendix VIII, by evaluating the existing data for these chemicals and establishing a record to support such a proposed rule. The four PFAS chemicals EPA will evaluate are: perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorobutane sulfonic acid (PFBS), and GenX. Adding these chemicals as RCRA Hazardous Constituents would ensure they are subject to corrective action requirements and would be a necessary building block for future work to regulate PFAS as a listed hazardous waste.

The second rulemaking effort will clarify in our regulations that the RCRA Corrective Action Program has the authority to require investigation and cleanup for wastes that meet the statutory definition of hazardous waste, as defined under RCRA section 1004(5). This modification would clarify that emerging contaminants such as PFAS can be cleaned up through the RCRA corrective action process.

## Future Treatment of Forever Chemicals

Bacteria can't eat them; fire can't incinerate them; and water can't dilute them

The secret to PFAS's indestructibility lies in its chemical bonds. PFAS contains many carbon-fluorine bonds, which are the strongest bonds in organic chemistry.

PFAS contains a long tail of unyielding carbon-fluorine bonds. But at one end of the molecule, there is a charged group that often contains charged oxygen atoms.

By heating the PFAS in dimethyl sulfoxide with sodium hydroxide, the process decapitated the head group, leaving behind a reactive tail that produces fluoride.



# How Can I Avoid Forever Chemicals?

- **Filter your drinking water.** Water systems serving millions of Americans may be PFAS-contaminated. They can be effectively removed with reverse osmosis or an activated carbon filtration system.
- **Avoid the use of non-stick cookware.** If you do use Teflon or other non-stick pots and pans, don't heat it above 450°F, or use it on grills or in ovens. Discard non-stick products as soon as the coating becomes chipped, scratched, or worn.
- **Don't purchase "stain-resistant" items or use stain resistance treatments.** Avoid purchasing carpets and upholstery marked as "stain-resistant," and don't use Stainmaster or similar products on carpet or fabrics. Other products to watch out for include coats, shoes, luggage, and camping and sporting equipment.
- **Take care with packaged foods.** To the degree possible, avoid foods packaged in grease-repellent coatings, such as fast food wrappers and microwave popcorn bags.
- **Check your personal-care products.** Avoid personal-care products made with ingredients that contain the term "fluoro," such as perfluorodecalin or perfluorononyl dimethicone. You can find these ingredients in nail polish, facial moisturizers, and eye make-up.
- **Contact your Senate and Congressional representatives** and ask them to encourage the EPA to classify all PFAS and PFBS as hazardous.

# THANK YOU

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