

“Forever” Chemicals,
Past and Present —

What You Need to Know

CLE: “Forever” Chemicals Past and Present –

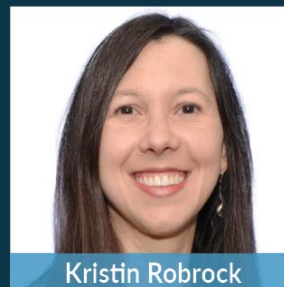
What You Need to Know

DECEMBER 9 | NOON–1:00 P.M.

SPEAKERS



Eric Grant



Kristin Robrock

HICKS
THOMAS LLP

Exponent®

STATE BAR *of* **TEXAS**

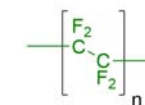
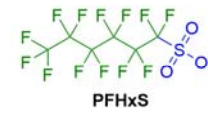
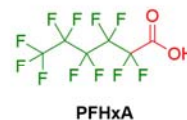
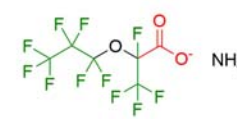
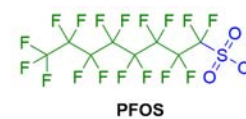
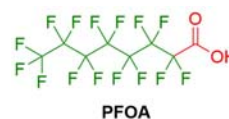
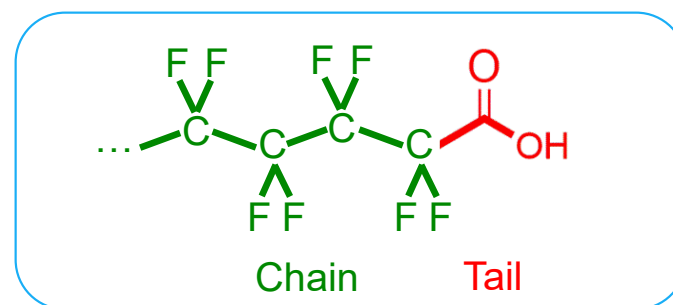
Course Number: 174141722

Course Title: Forever Chemicals Past and Present

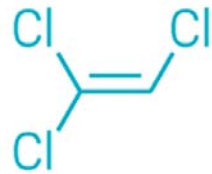
A short introduction to Per- and Polyfluoroalkyl Substances (PFAS)

PFAS have different chemistries with key similarities

- Thousands of PFAS
- Compounds differentiated by **chain length** and **tail(s)**:
 - Chain length groups: C8, C4, etc.
 - Tail groups: carboxylic acids, sulfonic acids, etc.
- Different chemical and physical properties

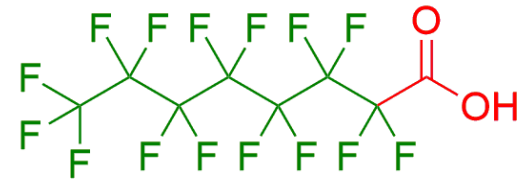


PFAS ≠ chlorinated solvents



TCE (trichloroethene)

≠



PFOA

Physical and Chemical Properties Affect Behavior in Multiple Contexts

Many are resistant to **chemicals** and **high temperature**

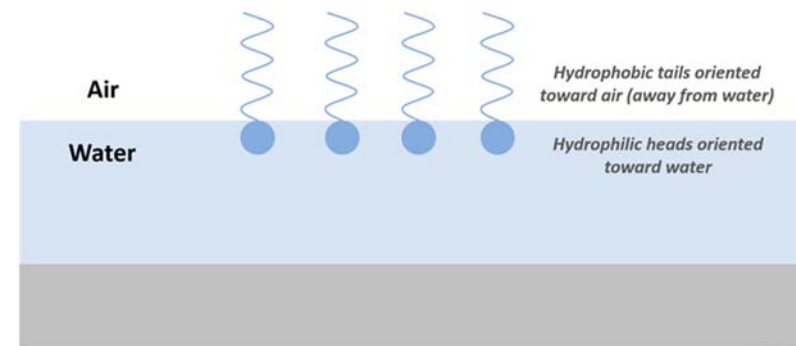


PFAS are **durable** and **slow to degrade**

Unique physical properties lead to unusual fate and transport of PFAS

- Fairly soluble in water
- Some are volatile in air
- Often charged (like salt)
- Bind to soils (based on chain length and charge)
- Tail degrades, but fluorinated chain is recalcitrant

- Like air-water surfaces



Source: ITRC

Why do we use these chemicals?

- Increasing wettability aids in coating applications



Incorporated
into liquid or
solid formulation



- Surfactant (soap-like) characteristics makes films and foams

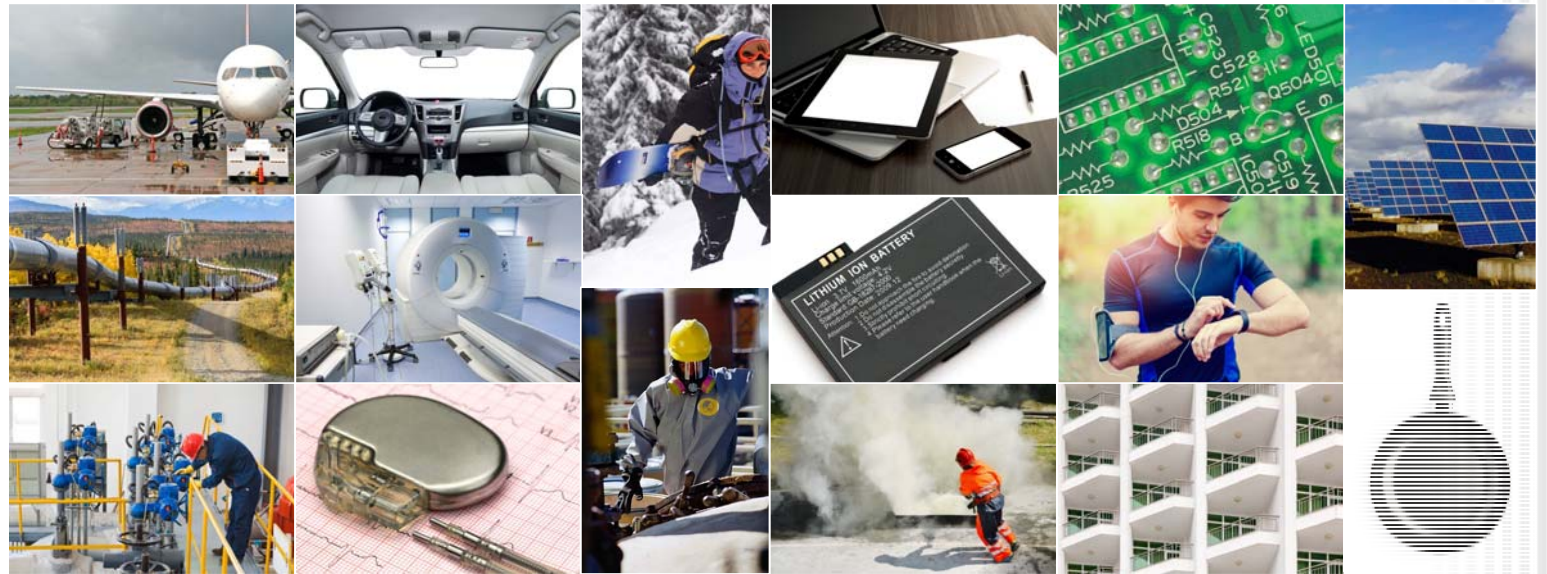
- Decreasing wettability provides water and oil repellence to surfaces



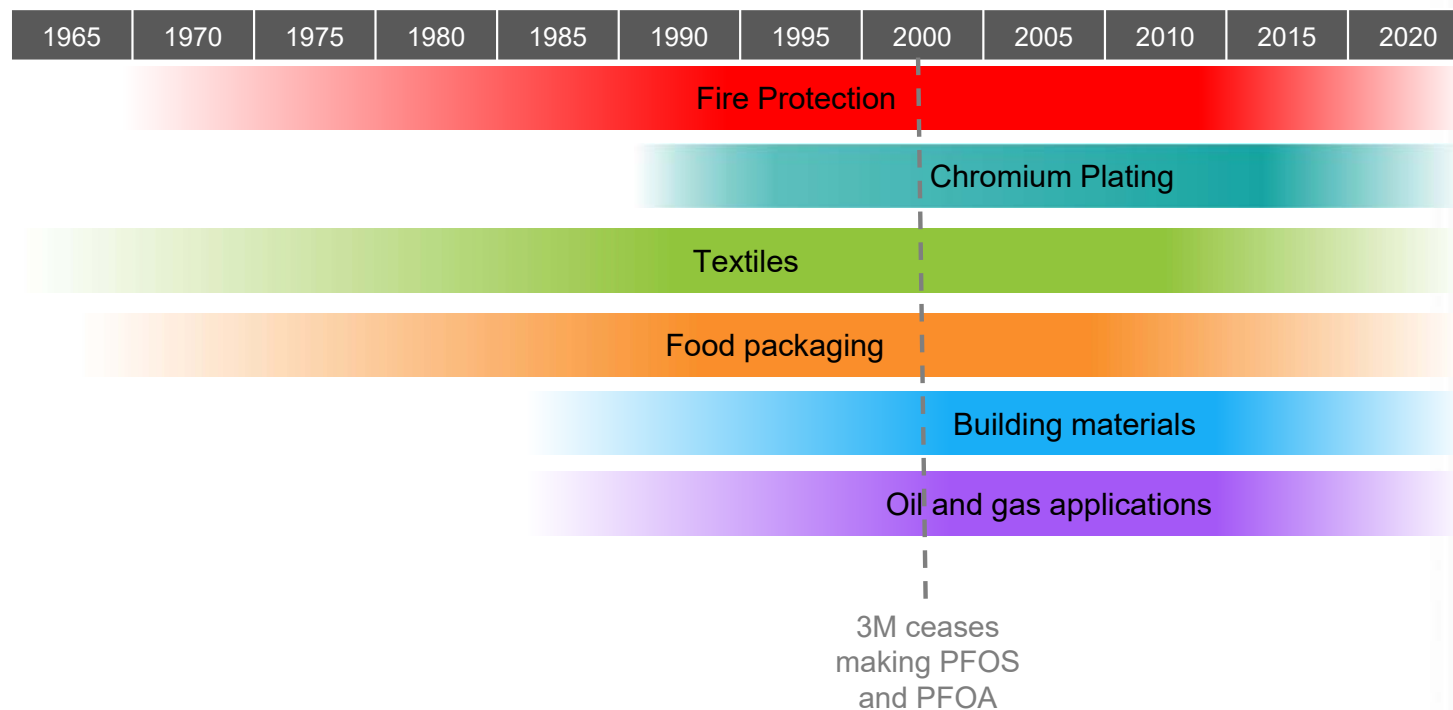
Applied
as coating



PFAS use in consumer products is widespread

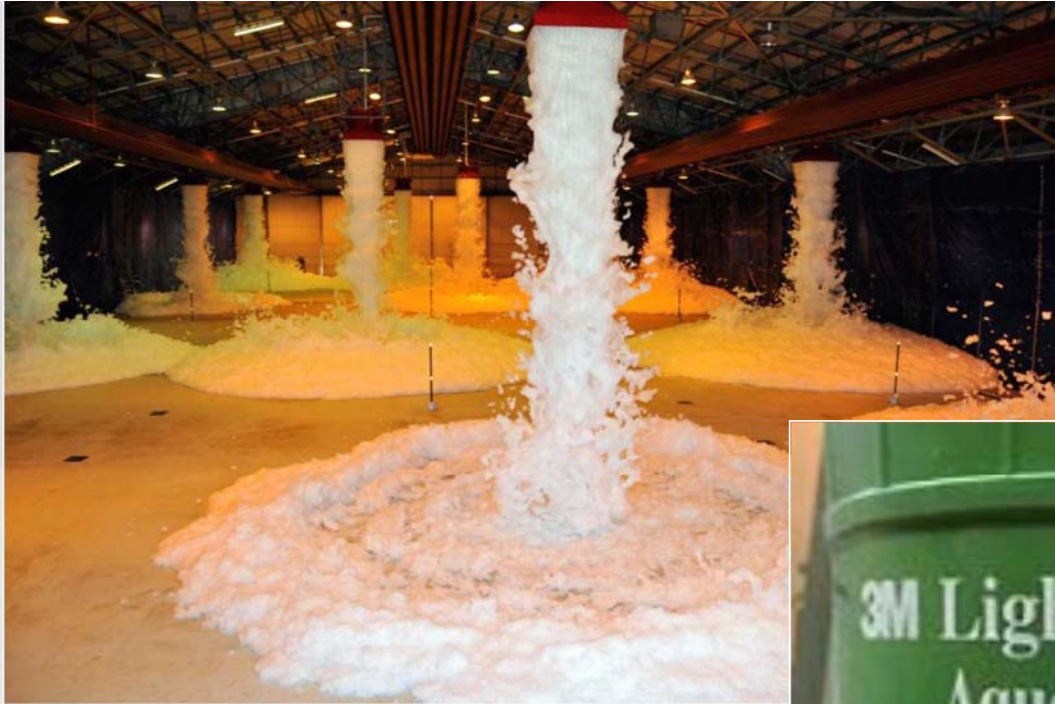


PFAS have been used for decades in many industries



Note: This timeline denotes the more common usage timeframes and does not necessarily include the first dates of invention/usage. This timeline also does not reflect specific manufacturers.

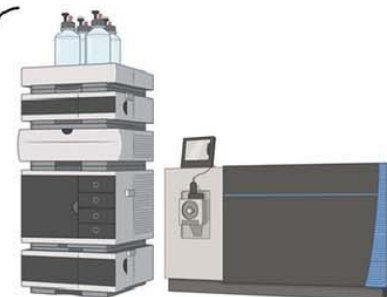
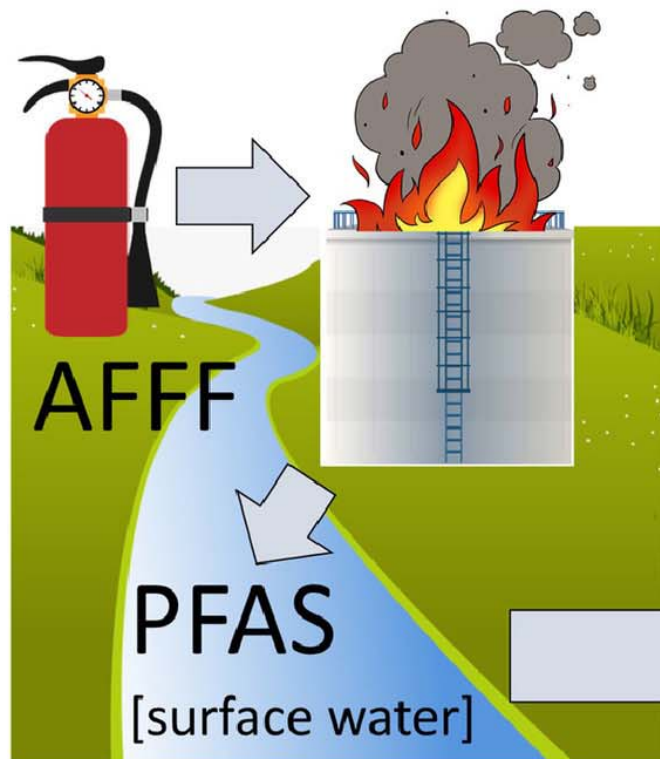
HICKS
THOMAS



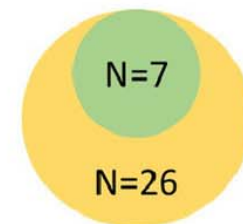
Exponent®

AFFF!





Targeted
analysis
[LC-MS/MS]



Untargeted
analysis
[LC-IMS-MS]

AFFF in the Houston Ship Channel in 2019

FRACKING WITH “FOREVER CHEMICALS”

RECORDS INDICATE OIL AND GAS FIRMS
INJECTED PFAS INTO MORE THAN 1,200
WELLS SINCE 2012; EPA APPROVED
CHEMICAL FOR OIL AND GAS OPERATIONS
DESPITE PFAS CONCERNS

BY DUSTY HORWITT, J.D.
PHYSICIANS FOR SOCIAL RESPONSIBILITY
JULY 2021



PSR  **PHYSICIANS FOR SOCIAL RESPONSIBILITY**
U.S. AFFILIATE OF INTERNATIONAL PHYSICIANS FOR THE PREVENTION OF NUCLEAR WAR

HEALTH RISKS [CONTINUED]



Figure 3 shows an example of a spill of fracking fluids. The photo is from the U.S. Environmental Protection Agency and shows a fire on June 28-29, 2014 at the Eisenbarth Well operated by Statoil (since renamed Equinor) in Monroe County, Ohio. The photographer is not listed.¹² According to an EPA report, trade secret fracking chemicals along with other chemicals were spilled because of the fire. Fluids that may have contained the trade secret chemicals ran off the well pad into a tributary of the Ohio River. An estimated 70,000 fish died.¹³

research is needed to understand how PFAS exposure may affect illness from COVID-19.¹⁴

Multiple Potential Pathways to Human Exposure

EPA and others have identified multiple pathways through which people could be exposed to the chemicals associated with oil and gas extraction including, potentially, PFAS. The agency indicated that any chemicals used during the first stage of the drilling process would be highly likely to leach into groundwater because during this stage, drilling passes directly through groundwater zones¹⁵ before any casing or

cement is placed in the well to seal it off from surrounding aquifers.

EPA found that during the fracking phase that follows drilling, exposure pathways could include:

- spills of fracking fluid that seep into groundwater;
- injection of fracking fluid into wells with cracks in the casing or cement, allowing the fluid to migrate into aquifers (much of the fracking fluid can remain underground);

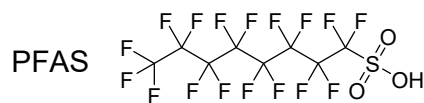
¹² PHYSICIANS FOR SOCIAL RESPONSIBILITY

So What Does “PFAS” Actually Mean?

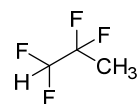
“There is no precisely clear definition of what constitutes a PFAS substance given the inclusion of partially fluorinated substances, polymers, and ill-defined reaction products on these various lists.”

EPA PFAS Master List

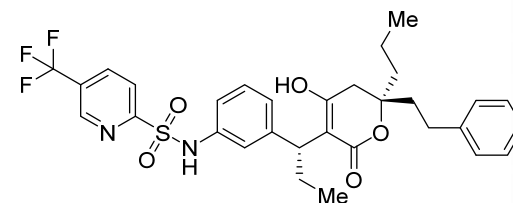
Multiple regulatory definitions for PFAS



PFOS
(Surfactant)



R-254cb
(Refrigerant)



Tipranavir®
(HIV Treatment)

	TSCA (PFAS = fully fluorinated carbon chain)	EPA PFAS Master List (no definition)	Maine LD 1503/ California AB 652 (PFAS = 1 fully fluorinated carbon)
# of unique structures	1,364	12,039	???
PFOS	Yes	Yes	Yes
1,1,2,2-tetrafluoropropane	No	Yes	Yes
Tipranavir	No	No	Yes

An Act To Stop Perfluoroalkyl and Polyfluoroalkyl Substances Pollution

STATE OF MAINE
IN THE YEAR OF OUR LORD
TWO THOUSAND TWENTY-ONE
H.P. 1113 - L.D. 1503

An Act To Stop Perfluoroalkyl and Polyfluoroalkyl Substances Pollution

Emergency preamble. Whereas, acts and resolves of the Legislature do not become effective until 90 days after adjournment unless enacted as emergencies; and

Whereas, contamination of soil and water in the State from perfluoroalkyl and polyfluoroalkyl substances, or PFAS, poses a significant threat to the environment of the State and to the health of its citizens; and

Whereas, the full extent of PFAS contamination in the State is not presently known but is anticipated to be widespread and to require a significant expenditure of resources to identify and remediate; and

Whereas, PFAS continue to be used across a variety of industries for a variety of purposes and are ultimately contained in a variety of products sold in the State; and

Whereas, to address the imminent threat of further contamination of soil and water in the State, it is imperative to collect information regarding the use of PFAS in and to phase out the sale of certain nonessential products containing PFAS, as proposed in this legislation; and

Whereas, in the judgment of the Legislature, these facts create an emergency within the meaning of the Constitution of Maine and require the following legislation as immediately necessary for the preservation of the public peace, health and safety; now, therefore,

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 38 MRSA §1612 is enacted to read:

§1612. Products containing PFAS

1. Definitions. As used in this section, unless the context otherwise indicates, the following terms have the following meanings.

A. "Carpet or rug" means a fabric marketed or intended for use as a floor covering.

B. "Currently unavoidable use" means a use of PFAS that the department has determined by rule under this section to be essential for health, safety or the functioning of society and for which alternatives are not reasonably available.

C. "Fabric treatment" means a substance applied to fabric to give the fabric one or more characteristics, including but not limited to stain resistance or water resistance.

D. "Intentionally added PFAS" means PFAS added to a product or one of its product components to provide a specific characteristic, appearance or quality or to perform a specific function. "Intentionally added PFAS" also includes any degradation by-products of PFAS.

E. "Manufacturer" means the person that manufactures a product or whose brand name is affixed to the product. In the case of a product imported into the United States, "manufacturer" includes the importer or first domestic distributor of the product if the person that manufactured or assembled the product or whose brand name is affixed to the product does not have a presence in the United States.

F. "Perfluoroalkyl and polyfluoroalkyl substances" or "PFAS" means substances that include any member of the class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.

G. "Product" means an item manufactured, assembled, packaged or otherwise prepared for sale to consumers, including its product components, sold or distributed for personal, residential, commercial or industrial use, including for use in making other products.

H. "Product component" means an identifiable component of a product, regardless of whether the manufacturer of the product is the manufacturer of the component.

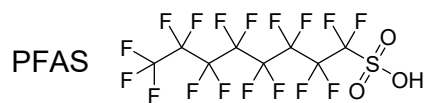
I. "Publicly owned treatment works" has the same meaning as in section 361-A.

2. **Notification.** A manufacturer of a product for sale in the State that contains intentionally added PFAS shall comply with the requirements of this subsection.

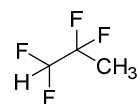
"PFAS" means substances that include any member of the class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.

the State that
notification
any product
acts service
lined using
is approved
and phone
is necessary

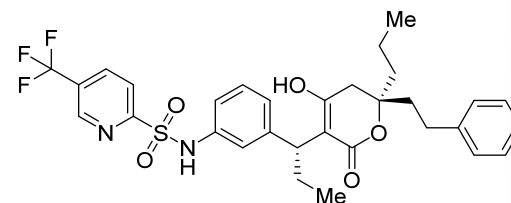
Multiple regulatory definitions for PFAS



PFOS
(Surfactant)



R-254cb
(Refrigerant)



Tipranavir®
(HIV Treatment)

	TSCA (PFAS = fully fluorinated carbon chain)	EPA PFAS Master List (no definition)	Maine LD 1503/ California AB 652 (PFAS = 1 fully fluorinated carbon)
# of unique structures	1,364	12,039	???
PFOS	Yes	Yes	Yes
1,1,1,2-tetrafluoropropane	No	Yes	Yes
Tipranavir	No	No	Yes

An overview of federal and state legislative and regulatory developments

117TH CONGRESS
1ST SESSION

H. R. 2467

AN ACT

To require the Administrator of the Environmental Protection Agency to designate per- and polyfluoroalkyl substances as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

1 SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

2 (a) SHORT TITLE.—This Act may be cited as the
3 “PFAS Action Act of 2021”.

4 (b) TABLE OF CONTENTS.—The table of contents for
5 this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Designation as hazardous substances.
- Sec. 3. Testing of perfluoroalkyl and polyfluoroalkyl substances.
- Sec. 4. Manufacturing and processing notices for perfluoroalkyl and polyfluoroalkyl substances.
- Sec. 5. National primary drinking water regulations for PFAS.
- Sec. 6. Enforcement.
- Sec. 7. Establishment of PFAS infrastructure grant program.
- Sec. 8. Listing of perfluoroalkyl and polyfluoroalkyl substances as hazardous air pollutants.
- Sec. 9. Prohibition on unsafe waste incineration of PFAS.
- Sec. 10. Label for PFAS-free products.
- Sec. 11. Guidance on minimizing the use of firefighting foam and other related equipment containing any PFAS.
- Sec. 12. Investigation of prevention of contamination by GenX.
- Sec. 13. Disclosure of introductions of PFAS.
- Sec. 14. Household well water testing website.
- Sec. 15. Risk-communication strategy.
- Sec. 16. Assistance to Territories for addressing emerging contaminants, with a focus on perfluoroalkyl and polyfluoroalkyl substances.
- Sec. 17. Clean Water Act effluent limitations guidelines and standards and water quality criteria for PFAS.
- Sec. 18. School drinking water testing and filtration grant program.
- Sec. 19. Analytical reference standards for PFAS.

Sec. 2. Designation as hazardous substances [CERCLA].

Sec. 8. Listing of perfluoroalkyl and polyfluoroalkyl substances as hazardous air pollutants [Clean Air Act].



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



EPA's goals include:


(1) like H.R. 2467, designate PFOA and PFOS as “hazardous substances” under CERCLA (summer of 2023);

(2) establish “national primary drinking water regulation” for PFOA and PFOS (fall of 2023); and

(3) publish final rule on monitoring of 29 PFAS by public water systems (fall of 2021).

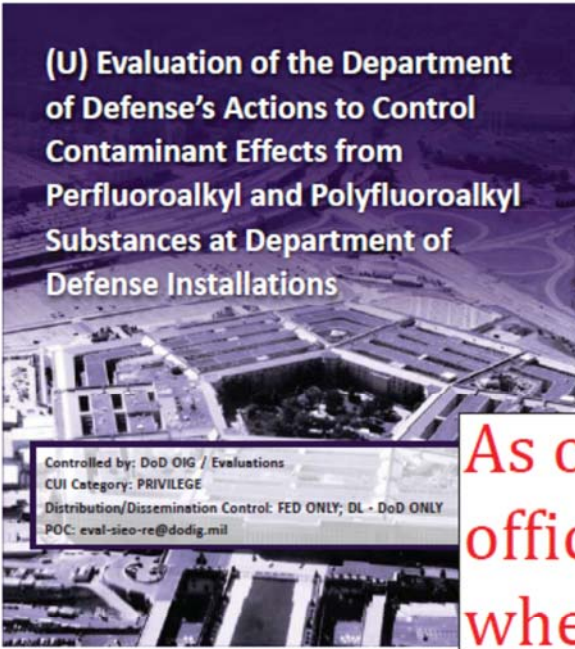

Report No. DODIG-2021-105

CU!



INSPECTOR GENERAL
U.S. Department of Defense

JULY 22, 2021



(U) Evaluation of the Department of Defense's Actions to Control Contaminant Effects from Perfluoroalkyl and Polyfluoroalkyl Substances at Department of Defense Installations

Controlled by: DoD OIG / Evaluations
CUI Category: PRIVILEGE
Distribution/Dissemination Control: FED ONLY; DL - DoD ONLY
POC: eval-sieo-re@dodig.mil

INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

CU!

(U) The DoD Uses Materials Containing PFAS

(U) DoD officials use products and materials, commonly available to U.S. home and business owners, that contain PFAS.¹⁹ For example, DoD officials purchase foods packaged in materials that may contain PFAS and use water-resistant clothing that may contain PFAS. DoD officials also use products, such as fire suppressants and fire-resistant aviation hydraulic fluids, that are largely limited to the DoD, civilian airports, and local fire departments.

(U) Petroleum-based fires pose a great risk to human life, are especially dangerous to military equipment, such as military aircraft, and are difficult to contain and extinguish. Manufacturers, including U.S. manufacturers, included PFOS and PFOA as ingredients in AFFF concentrates for their unique fire-resistant properties.²⁰ According to the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)), the DoD began using the fire suppressant foam AFFF, which contained PFAS, in the 1970s to fight petroleum-based fires.²¹ The fire suppressant foam is applied to petroleum-based fires where it forms a film that restricts oxygen to the fire and extinguishes the flames.

(U) The AFFF used by the DoD has historically contained PFOS and PFOA.²² If stored properly, AFFF concentrates have a long shelf-life and can remain in the DoD inventory for up to 25 years. As of September 30, 2020, DoD officials identified 687 sites, including active and National Guard installations, former military installations, and DLA sites, where PFAS-containing AFFF was used or released. We refer to the potential effects of PFAS to people, the environment, and DoD missions, programs, and resources as contaminant effects throughout this report. See Appendix C for the history of the DoD's use and response to PFAS contaminant effects.

As of September 30, 2020, DoD officials identified 687 sites ... where PFAS-containing AFFF was used or released. [Page 4]



State Water Resources Control Board

WATER CODE SECTIONS 13267 AND 13383 ORDER FOR THE DETERMINATION OF THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES AT BULK FUEL STORAGE TERMINALS AND REFINERIES

ORDER WQ 2021-0006-DWQ

Pursuant to Water Code sections 13267 and 13383, the State Water Resources Control Board (State Water Board) requires you to submit information as described below. Failure to comply with this Order may subject you to civil liability of up to \$25,000 per day for each day in which the violation occurs.

Your site is identified in **Attachment 1** as a facility that has stored and/or used materials that may contain per- and polyfluoroalkyl substances (PFAS). Therefore, you are required to submit the information detailed in **Attachment 2** to the appropriate Regional Water Quality Control Board (Regional Water Board) identified in the cover letter.

This Order requires completion of the following tasks:

1. Submit/upload a one-time preliminary site investigation work plan to GeoTracker Electronic Submittal of Information (ESI) Portal¹ for review and approval² by the appropriate Regional Water Board that:
 - a) identifies the PFAS-containing materials in your facility;
 - b) identifies the areas where PFAS-containing materials are stored, used, and/or disposed;
 - c) details the various potential pathways (current and historic) for discharge of PFAS from your facility and the nature of potential PFAS contamination in the surface and subsurface soil, groundwater,

¹ **GeoTracker** (<https://geotracker.waterboards.ca.gov/>) is the Water Boards' data management system for sites under contamination investigation and cleanup. The GeoTracker ESI Portal is accessed at: <https://geotracker.waterboards.ca.gov/esi/>. New users to the ESI Portal should contact the **GeoTracker Helpdesk** (<https://geotracker.waterboards.ca.gov/contactus>) to create a ESI account and assistance with uploading data.

² An unapproved work plan shall be revised based on comments from the appropriate Regional Water Board.

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBEC, EXECUTIVE DIRECTOR

1001 I Street, Sacramento, CA 95814 | Mailing Address: P.O. Box 100, Sacramento, CA 95812-0100 | www.waterboards.ca.gov

stormwater, and if the facility operates an onsite wastewater treatment plant, the plant influent and effluent; and

- d) describes a proposed sampling plan for these environmental matrices. See **Attachment 2** for the required investigation work plan components.

2. Perform the approved one-time preliminary site investigation.
3. Submit the results of the one-time preliminary site investigation in a final report to the appropriate Regional Water Board identified in the cover letter. The final report and electronic data deliverables for sample locations and laboratory results shall be submitted electronically into GeoTracker via the ESI Portal, as stipulated by California State law (California Code of Regulations Title 23, Division 3, Chapter 30). The electronic data deliverable requirement includes all analytical data, sample coordinate locations for surface soil, soil borings, groundwater, stormwater, influent, effluent, and monitoring well information (e.g. latitudes, longitudes, elevations, depth to water, well construction information, site maps, and boring logs).

Recipients of the Order must:

(1) Submit “a one-time preliminary site investigation work plan.”

(2) “Perform the approved one-time preliminary site investigation.”

(3) Submit the investigation’s results to the appropriate Regional Water Board.

PFOA: 0.007 parts per trillion
PFOS: 1 part per trillion

Public Health Goals

FIRST PUBLIC REVIEW DRAFT

Perfluorooctanoic Acid and Perfluorooctane Sulfonic Acid in Drinking Water

July 2021



Pesticide and Environmental Toxicology Branch
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

SUMMARY

For more than a half-century, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) were widely used in industrial applications and consumer products, notably, PFOA in nonstick cookware and PFOS in stain and water-repellant fabrics and in fire-fighting foams. The manufacture of these chemicals was phased out in the US following concerns about their extreme persistence in the environment and their detection in virtually all human blood serum samples. Although levels in the environment have declined from their peak around the year 2000, PFOA and PFOS continue to be present in the environment and are found in California drinking water. Because exposure to these chemicals is so prevalent and elimination times are so long, it is critical to understand the toxicity associated with these compounds, and their impacts on human health.

Public Health Goals for PFOA and PFOS

Scientific studies show adverse health effects of PFOA and PFOS in people exposed at environmental levels, and similar effects in laboratory animals. There is evidence from epidemiologic studies that exposure to PFOA increases the risk of kidney cancer. Human exposure to PFOA is also associated with liver and immune system toxicity and increased total cholesterol, and there is suggestive evidence of an association with risk of preeclampsia and pregnancy-related hypertension. PFOS is associated with immune system toxicity and increased total cholesterol in humans, with suggestive evidence of an association with risk of preeclampsia and pregnancy-related hypertension. The effects seen in humans are supported by studies in laboratory animals, which show that PFOA and PFOS can cause liver toxicity, immunotoxicity, thyroid toxicity, developmental/reproductive toxicity, and cancer.

This draft document presents proposed public health goals (PHGs) for PFOA and PFOS in drinking water, based on the most sensitive health effects. A PHG is the concentration of a contaminant in drinking water that is estimated to pose no significant health risk to individuals consuming the water on a daily basis over a lifetime. The proposed PHG for PFOA is based on kidney cancer in humans, while the proposed PHG for PFOS is based on liver and pancreatic tumor data from rat studies. This draft document also identifies health-protective concentrations (HPCs) for noncancer effects of PFOA and PFOS. The dose-response data from human studies were sufficient for derivation of the HPCs for these compounds, with the most sensitive noncancer endpoints being liver damage for PFOA and clinically relevant increased total cholesterol for PFOS.

Table S1 shows the proposed PHGs and HPCs for PFOA and PFOS.

Table S1. Proposed Public Health Goals and Health-Protective Concentrations

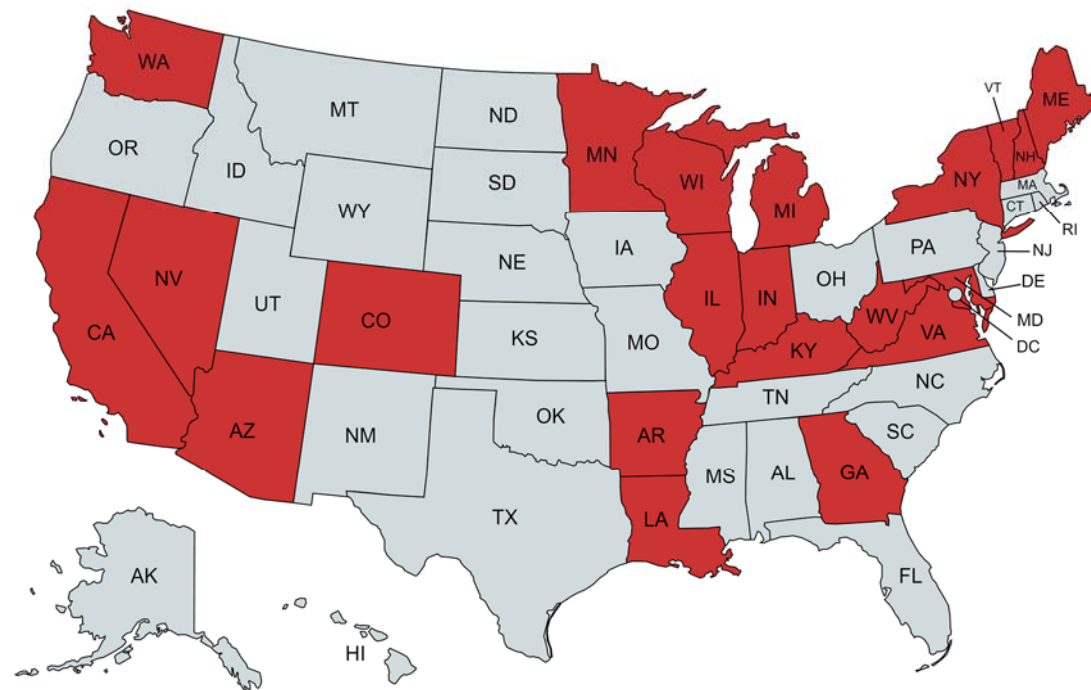
Chemical Name	PHG (ppt)	PHG Effect(s)	HPC (ppt)	HPC Effect
Perfluorooctanoic acid	0.007	Kidney cancer (human data)	3	Increased risk of liver damage (human data)
Perfluorooctane sulfonic acid	1	Cancer (animal data)	2	Increased total cholesterol (human data)

HPC, health-protective concentration; PHG, public health goal; ppt, parts per trillion (equivalent to nanograms per liter or ng/L)

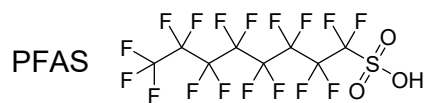
Proposed Public Health Goals for
PFOA and PFOS in Drinking Water

OEHHA
July 2021

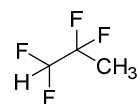
Multiple states are banning or limiting the use of fluorinated AFFF



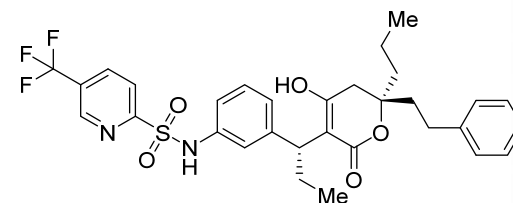
Multiple regulatory definitions for PFAS



PFOS
(Surfactant)



R-254cb
(Refrigerant)



Tipranavir®
(HIV Treatment)

	TSCA (PFAS = fully fluorinated carbon chain)	EPA PFAS Master List (no definition)	Maine LD 1503/ California AB 652 (PFAS = 1 fully fluorinated carbon)
# of unique structures	1,364	12,039	???
PFOS	Yes	Yes	Yes
1,1,1,2-tetrafluoroethane	No	Yes	Yes
Tipranavir	No	No	Yes

PFOA: 0.007 parts per trillion
PFOS: 1 part per trillion

Public Health Goals

FIRST PUBLIC REVIEW DRAFT

Perfluorooctanoic Acid and Perfluorooctane Sulfonic Acid in Drinking Water

July 2021



Pesticide and Environmental Toxicology Branch
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

SUMMARY

For more than a half-century, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) were widely used in industrial applications and consumer products, notably, PFOA in nonstick cookware and PFOS in stain and water-repellant fabrics and in fire-fighting foams. The manufacture of these chemicals was phased out in the US following concerns about their extreme persistence in the environment and their detection in virtually all human blood serum samples. Although levels in the environment have declined from their peak around the year 2000, PFOA and PFOS continue to be present in the environment and are found in California drinking water. Because exposure to these chemicals is so prevalent and elimination times are so long, it is critical to understand the toxicity associated with these compounds, and their impacts on human health.

Public Health Goals for PFOA and PFOS

Scientific studies show adverse health effects of PFOA and PFOS in people exposed at environmental levels, and similar effects in laboratory animals. There is evidence from epidemiologic studies that exposure to PFOA increases the risk of kidney cancer. Human exposure to PFOA is also associated with liver and immune system toxicity and increased total cholesterol, and there is suggestive evidence of an association with risk of preeclampsia and pregnancy-related hypertension. PFOS is associated with immune system toxicity and increased total cholesterol in humans, with suggestive evidence of an association with risk of preeclampsia and pregnancy-related hypertension. The effects seen in humans are supported by studies in laboratory animals, which show that PFOA and PFOS can cause liver toxicity, immunotoxicity, thyroid toxicity, developmental/reproductive toxicity, and cancer.

This draft document presents proposed public health goals (PHGs) for PFOA and PFOS in drinking water, based on the most sensitive health effects. A PHG is the concentration of a contaminant in drinking water that is estimated to pose no significant health risk to individuals consuming the water on a daily basis over a lifetime. The proposed PHG for PFOA is based on kidney cancer in humans, while the proposed PHG for PFOS is based on liver and pancreatic tumor data from rat studies. This draft document also identifies health-protective concentrations (HPCs) for noncancer effects of PFOA and PFOS. The dose-response data from human studies were sufficient for derivation of the HPCs for these compounds, with the most sensitive noncancer endpoints being liver damage for PFOA and clinically relevant increased total cholesterol for PFOS.

Table S1 shows the proposed PHGs and HPCs for PFOA and PFOS.

Table S1. Proposed Public Health Goals and Health-Protective Concentrations

Chemical Name	PHG (ppt)	PHG Effect(s)	HPC (ppt)	HPC Effect
Perfluorooctanoic acid	0.007	Kidney cancer (human data)	3	Increased risk of liver damage (human data)
Perfluorooctane sulfonic acid	1	Cancer (animal data)	2	Increased total cholesterol (human data)

HPC, health-protective concentration; PHG, public health goal; ppt, parts per trillion (equivalent to nanograms per liter or ng/L)

Proposed Public Health Goals for
PFOA and PFOS in Drinking Water

OEHHA
July 2021

Overview of litigation developments — and potential liabilities

District of South Carolina

Plaintiff is “the largest groundwater agency in the state of California.”

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF **SOUTH CAROLINA**

WATER REPLENISHMENT DISTRICT OF)	
SOUTHERN CALIFORNIA)	MDL No. 2873
Plaintiff,)	
v.)	Master Docket No. 2:18-mn-2873
3M COMPANY (f/k/a Minnesota Mining and)	Judge Richard Mark Gergel
Manufacturing, Co.), AGC CHEMICALS)	Civil Action No. 2:21-cv-03669-RMG
AMERICAS, INC.; ARCHROMA, U.S.,)	
INC.; ARKEMA, INC., BUCKEYE FIRE)	COMPLAINT AND DEMAND FOR
EQUIPMENT COMPANY,)	JURY TRIAL
CARRIER GLOBAL CORPORATION;)	
CHEMGUARD, INC., CLARIANT)	
CORPORATION; CORTEVA, INC.)	
DUPONT DE NEMOURS, INC., DYNAX)	
CORPORATION, E I DU PONT DE)	
NEMOURS AND COMPANY,)	
JOHN DOE DEFENDANTS 1-49,)	
KIDDE FENWAL, INC., NATIONAL)	
FOAM, INC., THE CHEMOURS)	
COMPANY L.L.C. F/K/A THE CHEMOURS)	
COMPANY, TYCO FIRE PRODUCTS LP)	
(successor-in-interest to the Ansul Co.), and,)	
UTC FIRE & SECURITY AMERICAS)	
CORPORATION, INC.)	
Defendants.)	

COMPLAINT
(JURY TRIAL DEMANDED)

SUMMARY OF THE CASE

1. Plaintiff the WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA (“Plaintiff”) is the largest groundwater agency in the state of California, managing and protecting local groundwater resources for over four million residents. Plaintiff was formed in 1959 for the purpose of protecting the groundwater resources of the Central and West Coast Groundwater Basins. Plaintiff protects the basins through groundwater replenishment, ensuring

UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF VERMONT

JAMES D. SULLIVAN and LESLIE ADDISON,
WILLIAM S. SUMNER, JR., RONALD S.
HAUSTHOR, GORDON GARRISON, TED and
LINDA CRAWFORD, and BILLY J. KNIGHT,
Individually and on behalf of Class of persons
similarly situated,

Plaintiffs,

v.

SAINT-GOBAIN PERFORMANCE PLASTICS
CORPORATION,

Saint-Gobain.

Civil Action

Docket No. 5:16-cv-00125-gwc

**UNOPOSED MOTION FOR PRELIMINARY APPROVAL
OF CLASS ACTION SETTLEMENT**

Plaintiff Class Representatives James D. Sullivan, Leslie Addison, Ronald S. Hausthor, Gordon Garrison, Ted Crawford, Linda Crawford, and Billy J. Knight, on behalf of themselves and the Class Members, have entered into a Class Settlement Agreement resolving all of their claims against Defendant Saint-Gobain Performance Plastics Corporation. Under Rule 23(e) of the Federal Rules of Civil Procedure, the settlement of the claims of the Class Representatives and the Class Members is subject to approval by the Court. Accordingly, pursuant to Rule 23(e), Plaintiffs move the Court to enter an Order:

- a. Preliminarily approving the terms and conditions of the Settlement embodied in the Settlement Agreement subject to a Final Approval Hearing and Final Approval Order by the Court;
- b. Finding that the Notice Plan and Notice proposed by Class Counsel fairly and adequately describes the terms and effect of the Settlement Agreement; gives notice of Property Class

UNITED STATES DISTRICT COURT
DISTRICT OF VERMONT

JAMES D. SULLIVAN, *et al.*, individually,
and on behalf of a Class of persons similarly
situated,

Plaintiffs,

v.

SAINT-GOBAIN PERFORMANCE
PLASTICS CORPORATION,

Defendant.

Case No. 5:16-cv-00125-GWC

Hon. Geoffrey W. Crawford

CLASS SETTLEMENT AGREEMENT

This Class Settlement Agreement is entered into as of this 10th day of November, 2021, by, between and among Plaintiffs, on behalf of themselves and the members of the Exposure Class and Property Class certified by the Court in the above-referenced matter (the "Action"), by and through Class Counsel, and Defendant Saint-Gobain Performance Plastics Corporation ("Saint-Gobain" or "Defendant"), by and through its counsel of record in the Action.

I. RECITALS

WHEREAS, Plaintiffs have asserted claims against Defendant in this Action on behalf of two classes certified by the Court, the Exposure Class and the Property Class;

WHEREAS, Plaintiffs allege that Defendant is liable under various tort theories and statutory causes of action for various damages and other relief based on the presence of Perfluorooctanoic Acid ("PFOA") in their drinking water and/or in groundwater and soil on their property, which Plaintiffs allege was released from two facilities operated by Saint-Gobain and its predecessor in the Town of Bennington and the Village of North Bennington, Vermont (the



STATE OF MICHIGAN
CIRCUIT COURT FOR THE 30TH JUDICIAL CIRCUIT
INGHAM COUNTY

ATTORNEY GENERAL DANA NESSEL, on
behalf of the People of the State of Michigan,
and the STATE OF MICHIGAN,

No. 2020-_____

HON.

Plaintiffs,

v

CHEMGUARD, INC., TYCO FIRE PRODUCTS, LP, NATIONAL FOAM, INC., ANGUS FIRE ARMOUR CORPORATION, KIDDE P.L.C., INC., KIDDE-FENWAL, INC., RAYTHEON TECHNOLOGIES CORPORATION, UTC FIRE & SECURITY AMERICAS CORPORATION, INC., VULCAN FIRE SYSTEMS, INC., HUNTINGTON LABORATORIES, INC., ECOLAB INC., MINE SAFETY APPLIANCES COMPANY, LLC, VERDE ENVIRONMENTAL, INC., a/k/a MICRO-BLAZE, INC., HARTFORD CHEMICAL SALES CORPORATION, G.V.C. CHEMICAL CORPORATION, STEVENS COMPANY, INC., HAZARD CONTROL TECHNOLOGIES, INC., FIRE-ADE, INC., ROCKWOOD SYSTEMS, INC., f/k/a ROCKWOOD SYSTEMS CORPORATION, COBRA FIRE PROTECTION, INC., BROCO PRODUCTS, INC., PIONEER PRODUCTS, INC., DENKO, INC., a/k/a DENKO FOAM, INC., RUSSELL MARTIN INDUSTRIES, Inc., DAWN CHEMICAL CORPORATION OF WISCONSIN, INC., AMEREX CORPORATION, PERIMETER SOLUTIONS LP, NOBLE INDUSTRIAL SUPPLY CORPORATION, ROYAL CHEMICAL COMPANY, VST CHEMICAL CORPORATION, SUMMIT ENVIRONMENTAL CORPORATION, INC., FIRE SERVICES PLUS, INC., BUCKEYE FIRE EQUIPMENT COMPANY.

COMPLAINT WITH JURY
DEMAND ENDORSED
HEREON

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

ATTORNEY GENERAL DANA NESSEL, on
behalf of the People of the State of Michigan, and
the STATE OF MICHIGAN,

No. 20-cv-00787

HON.

Plaintiffs,

MAG.

v

E. I. DU PONT DE NEMOURS AND COMPANY, THE CHEMOURS COMPANY, THE CHEMOURS COMPANY FC, LLC, DOWDUPONT, INC., CORTEVA, INC., DUPONT DE NEMOURS, INC., ARCHROMA U.S., INC., ARKEMA, INC., AGC CHEMICALS AMERICAS INC., DAIKIN AMERICA, INC., SOLVAY SPECIALTY POLYMERS, USA, CHEMGUARD, INC., TYCO FIRE PRODUCTS, LP, NATIONAL FOAM, INC., ANGUS FIRE ARMOUR CORPORATION, KIDDE P.L.C., INC., KIDDE-FENWAL, INC., RAYTHEON TECHNOLOGIES CORPORATION, UTC FIRE & SECURITY AMERICAS CORPORATION, INC., VULCAN FIRE SYSTEMS, INC., HUNTINGTON LABORATORIES, INC., ECOLAB INC., MINE SAFETY APPLIANCES COMPANY, LLC, VERDE ENVIRONMENTAL, INC., a/k/a MICRO-BLAZE, INC., HARTFORD CHEMICAL SALES CORPORATION, G.V.C. CHEMICAL CORPORATION, STEVENS COMPANY, INC., HAZARD CONTROL TECHNOLOGIES, INC., FIRE-ADE, INC., ROCKWOOD SYSTEMS, INC., f/k/a ROCKWOOD SYSTEMS CORPORATION, COBRA FIRE PROTECTION, INC., BROCO PRODUCTS, INC., PIONEER PRODUCTS, INC., DENKO, INC., a/k/a DENKO FOAM, INC., RUSSELL MARTIN INDUSTRIES, INC., DAWN CHEMICAL CORPORATION OF WISCONSIN, INC., AMEREX CORPORATION, PERIMETER SOLUTIONS LP, NOBLE INDUSTRIAL

COMPLAINT WITH JURY
DEMAND ENDORSED
HEREON

Wisconsin Department of Justice

AG Kaul, Gov Evers Announce Outside Counsel for Potential PFAS Claims

Aug 25 2021

MADISON, Wis. – Attorney General Josh Kaul and Governor Tony Evers today announced the selection of the law firm, Sher Edling LLP, to assist the state in its investigation and litigation of potential claims arising from PFAS contamination.



EPA

SUPERFUND SITE

WARNING:
Hazardous materials
present at this site.
No Trespassing.

For further information call the
U.S. Environmental Protection Agency
(800) 346-5009

Resource Conservation and Recovery Act (RCRA), 42 U.S. Code § 6972(a)(1)(B):

[In general], **any person** may commence a civil action on his own behalf —

...

against **any person**, . . . **including** any past or present **generator**, past or present **transporter**, or past or present **owner or operator** of a treatment, storage, or disposal facility, **who has contributed or who is contributing** to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an **imminent and substantial endangerment to health or the environment**







PFAS Can Be Found in Many Places

PFAS can be present in our water, soil, air, and food as well as in materials found in our homes or workplaces, including:

- **Drinking water** – in public drinking water systems and private drinking water wells.
- **Soil and water at or near waste sites** - at landfills, disposal sites, and hazardous waste sites such as those that fall under the federal Superfund and Resource Conservation and Recovery Act programs.
- **Fire extinguishing foam** - in aqueous film-forming foams (or AFFFs) used to extinguish flammable liquid-based fires. Such foams are used in training and emergency response events at airports, shipyards, military bases, firefighting training facilities, chemical plants, and refineries.
- **Manufacturing or chemical production facilities that produce or use PFAS** – for example at chrome plating, electronics, and certain textile and paper manufacturers.
- **Food** – for example in fish caught from water contaminated by PFAS and dairy products from livestock exposed to PFAS.
- **Food packaging** – for example in grease-resistant paper, fast food containers/wrappers, microwave popcorn bags, pizza boxes, and candy wrappers.
- **Household products and dust** – for example in stain and water-repellent used on carpets, upholstery, clothing, and other fabrics; cleaning products; non-stick cookware; paints, varnishes, and sealants.
- **Personal care products** – for example in certain shampoo, dental floss, and cosmetics.
- **Biosolids** – for example fertilizer from wastewater treatment plants that is used on agricultural lands can affect ground and surface water and animals that graze on the land.

Cautionary notes and recommendations

Historical PFAS formulations are not always well documented—examples from SDSs

Section 2. Composition, Information on Ingredients

Name	CAS #	% by Weight
TETRAETHYLAMMONIUM PERFLUOROCTANE SULFONATE	56773-42-3	<5.0
WATER	7732-18-5	<100.0

All ingredients comply with

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
polyfluorosulphonic acid	1-10	-
methanol	0.1-1.0	67-56-1

A Trade Secret exemption is pending with the HMIRC for one or more ingredients in this product. Registry Number: 9169; 2014-01-31

Ingredients

Name: *** PROPRIETARY ***

is due to batch variation.
 e current knowledge of the supplier and in the
 health or the environment and hence require reporting
 on 8.

“PFAS-free” isn’t always PFAS-free

- Some products marketed as “PFAS Free” may actually contain fluorinated substances
- Some products marketed as “PFOA or PFOS free” contain other fluorinated chemistries



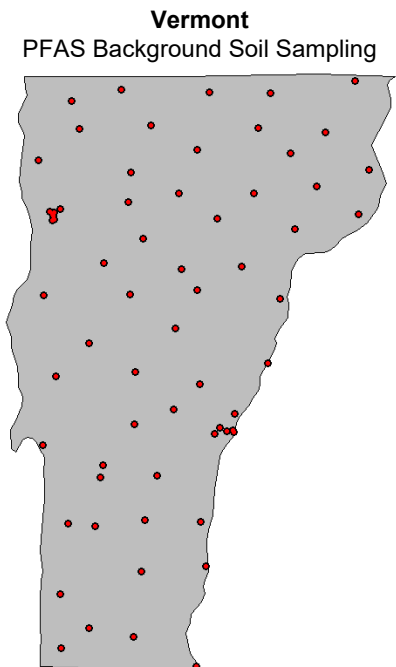
PFASfree



Test your product to be sure

Don't forget about “background” concentrations

- Large-scale surveys demonstrate a consistent presence at concentrations that could be considered “background”
- Historical use contributed to a diffuse, regional baseline level in the environment (soil, air and water)



Zhu et al. 2019. PFAS Background in Vermont Shallow Soils.

Be aware of indirect and unknown sources of PFAS

- Raw materials
- Water used in manufacturing
- Equipment
- Packaging/containers
- Residual contamination in manufacturing equipment



CLE: “Forever” Chemicals Past and Present –

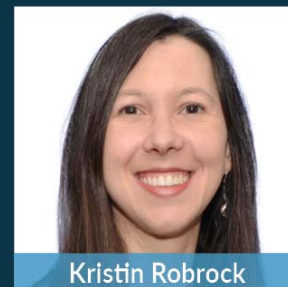
What You Need to Know

DECEMBER 9 | NOON–1:00 P.M.

SPEAKERS



Eric Grant



Kristin Robrock

HICKS
THOMAS LLP

Exponent®

STATE BAR *of* **TEXAS**

Course Number: 174141722

Course Title: Forever Chemicals Past and Present



www.hicks-thomas.com

Houston | Sacramento | Austin | Amarillo | Beaumont