



Positively Innovative



August
2025

PFAS Policy and Regulatory Update

DAIKIN AMERICA, INC.



Foundation
1924

Headquarters
**Osaka
(Japan)**

Employees
96,337

Revenue
\$32 Billion

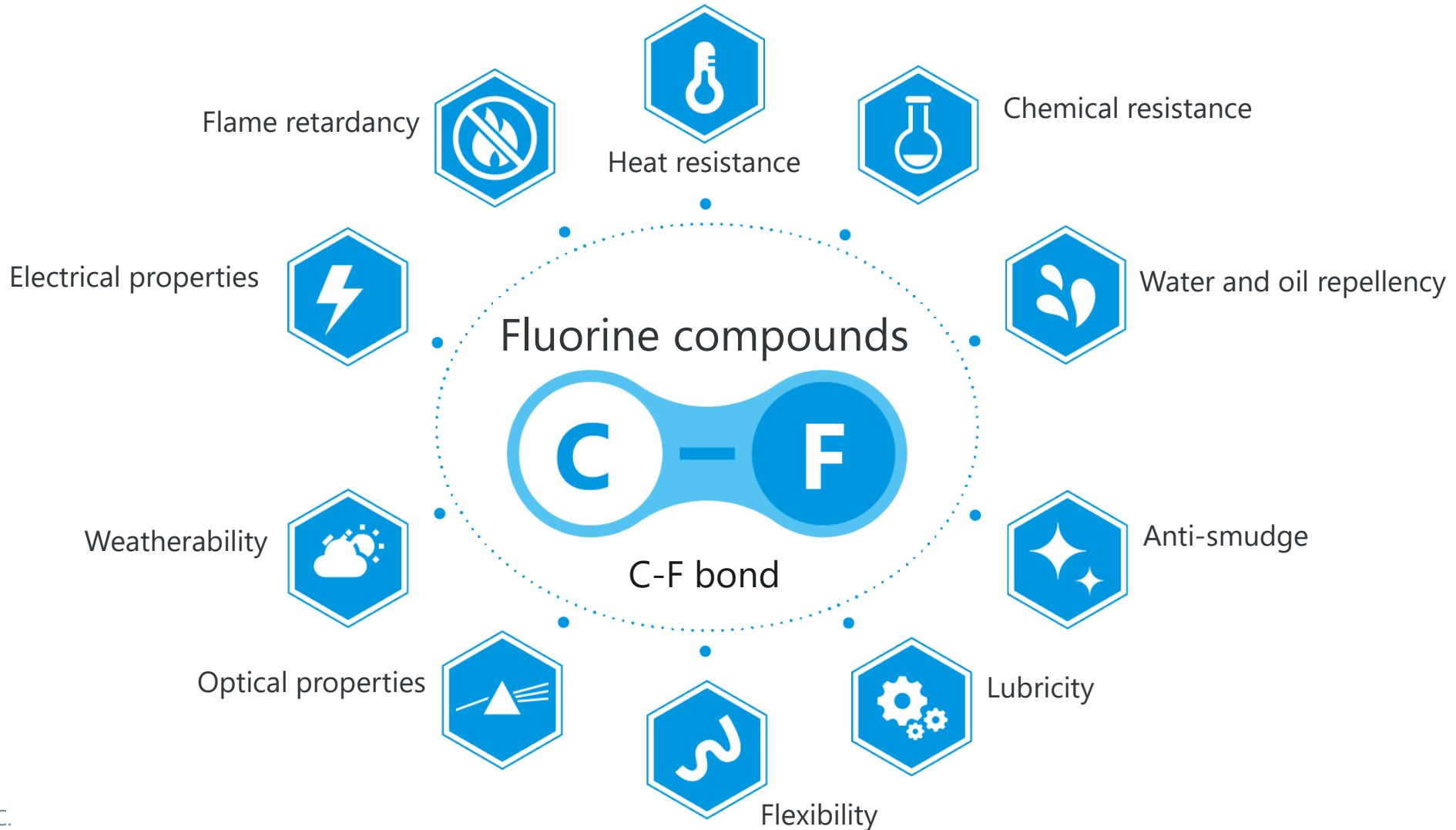
Consolidated
Subsidiaries
347

Daikin Is One Of The Global Manufacturers Of High Performance Materials

WHY ALL THE FOCUS ON PFAS?

Various beneficial properties of fluorocarbon materials

Fluorocarbon materials are highly valued for their properties



Applications in Medical

Medical devices and Pharmaceutical

- Surgically implantable medical devices such as:
- Vascular grafts
- Surgical Mesh
- Heart patches
- Catheters
- Carrier fluid for the deposition of lubricants on medical devices and catheters
- Dielectric insulators in defibrillators, pacemakers
- Diaphragm pumps
- Membranes for filtering and venting purposes
- Sterile container filters, needle retrieval systems, Tracheostomy, catheter guide wire for laparoscopy, valves, fittings, pumps, tubing and medicine inhaler canister coatings
- Labware
- Medicine Packaging
- Items that need sterilization
- Metered Dose Inhalers

PTFE, FEP, PFA,
ETFE, HFCs

Infrastructure

HFOs, HFCs

- Transport and stationary refrigeration systems
- AC, heat pump, & humidity control for:
 - Patient rooms
 - Special areas (OR, ICU, etc.)
- Thermal management for labs and equipment
- Refrigeration and insulation for Food Services and distribution of vaccines and pharmaceuticals
- Cleaning of supplemental oxygen systems for breathing air
- Foam insulation for cryogenic tanks
- Thermodynamic sanitary hot water tanks
- Fire protection



• Medical imaging & analysis

- Semiconductor chips
- O-rings, gaskets, seals
- Coating for wire & cable
- Tapes, wires, and cables
- Bearings and assemblies
- Degreasing

PTFE, FEP, PFA,
FKM, PFPE, HFOs

PFOA, PFOS and Other PFAS

PFAS Explained ^

EPA's Current Understanding

Increasing Our Understanding

Action Steps to Reduce Risk

EPA Actions to Address PFAS

PFAS Strategic Roadmap

Data and Tools

State Information

[Contact Us About PFOA, PFOS and Other PFAS](#)

Our Current Understanding of the Human Health and Environmental Risks of PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Are a Group of Manufactured Chemicals

PFAS are a group of manufactured chemicals that have been used in industry and consumer products since the 1940s because of their useful properties. There are thousands of different PFAS, some of which have been more widely used and studied than others.

Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS), for example, are two of the most widely used and studied chemicals in the PFAS group. PFOA and PFOS have been replaced in the United States with other PFAS in recent years.

One common characteristic of concern of PFAS is that many break down very slowly and can build up in people, animals, and the environment over time.

What EPA is Doing

[Learn what EPA is doing to address PFAS.](#)

- Having no universally-accepted definition for PFAS leads to regulatory uncertainty

Delaware/West Virginia: PFAS means “non-polymeric perfluoroalkyl and polyfluoroalkyl substances that are a group of man-made chemicals that contain at least 2 fully fluorinated carbon atoms, excluding gases and volatile liquids. PFAS includes PFOA and PFOS.”

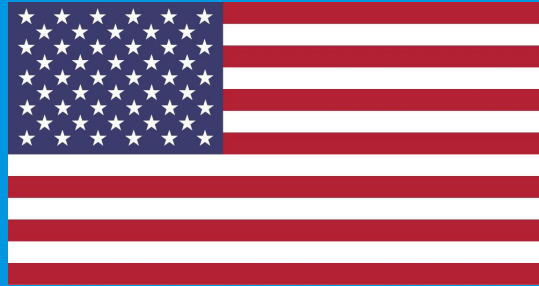
EPA TSCA 8(a)7 Reporting Rule: EPA is defining “PFAS” using a structural definition. PFAS is defined as including at least one of these three structures:

- $R-(CF_2)-CF(R')R''$, where both the CF_2 and CF moieties are saturated carbons;
- $R-CF_2OCF_2-R'$, where R and R' can either be F , O , or saturated carbons; and
- $CF_3C(CF_3)R'R''$, where R' and R'' can either be F or saturated carbons.

OECD 2021/EU: 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), i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group ($-CF_3$) or a perfluorinated methylene group ($-CF_2-$) is a PFAS.

Maine/Minnesota: “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.

UNITED STATES PFAS POLICY AND REGULATIONS



- *Winter 2022*: Expanded testing and monitoring of additional PFAS chemicals, including quarterly public release of **UCMR5** data running from 2023-2025 (29 PFAS tested)
- *Summer 2023*: Framework for **TSCA New Chemicals Review** of PFAS Premanufacture Notices (PMNs) and Significant New Use Notices (SNUNs) released.
- *Fall 2023*: Final reporting rule under **TSCA Section 8(a)7**
 - Requires electronic reporting of information regarding PFAS uses, production volumes, disposal, exposures, and hazards
 - Manufacturers that manufacture or have manufactured covered chemical substances **in any year since January 1, 2011**.
 - Same requirements for importers
 - Did not exempt small manufacturers
 - Did not exempt the manufacture of PFAS as a byproduct
 - Articles containing PFAS are included
 - One time reporting rule, with data due in ~~May 2025~~ **January 2026**
- *Fall 2023*: **Final TRI reporting rule**
 - Final Rule eliminated the de minimis exemption for PFAS. A Supplier Notification must now be provided to customers for any known quantity of TRI-listed PFAS in a product, including impurities.
 - Reporting threshold remains at 100 pounds per PFAS chemical
- *Spring 2024*: Finalized **CERCLA designation** for PFOA & PFOS (Superfund)
- *Spring 2024*: Final **MCL (drinking water standard)** for PFOA (4 ppt), PFOS (4 ppt), PFNA (10 ppt), PFBS (10 ppt) and HFPO-DA/ GenX (10 ppt). EPA provided water utilities 5 years (until 2029) to comply with new standard.

- **Broad PFAS Action Plan**
 - On April 28, Administration Zeldin announced some of its planned PFAS efforts.
<https://www.epa.gov/newsreleases/administrator-zeldin-announces-major-epa-actions-combat-pfas-contamination>
 - There were 3 prongs to the actions
 - **Strengthening the Science**
 - PFAS Agency Lead, PFAS Testing Strategy, Data Gathering, Destruction and Disposal Guidance
 - **Fulfilling Statutory Obligations and Enhancing Communication**
 - Effluent limitation guidelines (ELGs), compliance, TRI and TSCA 8(a)7 reporting adjustments, RCRA, new PFAS
 - **Building Partnerships**
 - States, new technologies, "Hold polluters accountable"
- **TSCA Section 8(a)(7) Rule**
 - On May 12, EPA announced the [further extension of the reporting timeline](#) for the TSCA Section 8(a)(7) rule and its intent to evaluate changes to the rule. The announcement specifically states that "While the delay to the start of the submission period is effectively immediately, EPA will accept public comments on the reporting period change for 30 days. Additionally, the agency is considering a separate action to reopen other aspects of this rule for public comment. EPA plans to address any comments submitted on this interim final rule and on the future proposed rule concurrently." Under this new timeline, reporting will The new start date is **April 13, 2026**. Also, the reporting period will **end on October 13, 2026**,
- **MCL/Drinking Water Review**
 - On May 14,, EPA announced that it is planning to [remand and redo the MCL](#) for Gen X, PFHxS, PFNA and PFBA. **For PFOA and PFOS, EPA will keep in place the 4 ppt standard** while the legal challenge continues, while granting water utilities additional time to comply (until 2031).

Food and Drug Administration (FDA)

- FDA announcements on PFAS with regard to food and food contact products: <https://www.fda.gov/food/process-contaminants-food/fda-announcements-pfas-and-other-us-government-information>
- Medical devices using fluoropolymers (PTFE, ETFE, etc.) continue to be approved
- August 2025 FDA Statement on PFAS in Medical Devices: <https://www.fda.gov/medical-devices/products-and-medical-procedures/pfas-medical-devices>

*"The PFAS used in medical devices are not the same as those identified as being potentially harmful to people in other contexts. The PFAS materials used in medical devices (known as fluoropolymers) have a long history of use. The best-known of these materials is polytetrafluoroethylene (PTFE), which is used in multiple consumer products, and was first used in a medical device in the 1950s... **The FDA's evaluation is that currently there is no reason to restrict their continued use in devices.**"*

Department of Energy (DOE)

- DOE was required to write a report on the life cycle assessment of fluoropolymers and their alternatives: <https://www.osti.gov/biblio/2370520>
- PFAS (particularly PTFE) first produced on industrial scale for use in Manhattan Project; once declassified, commercial use began in 1949
- DOE efforts found here: <https://www.energy.gov/pfas/pfas-and-polyfluoroalkyl-substances>

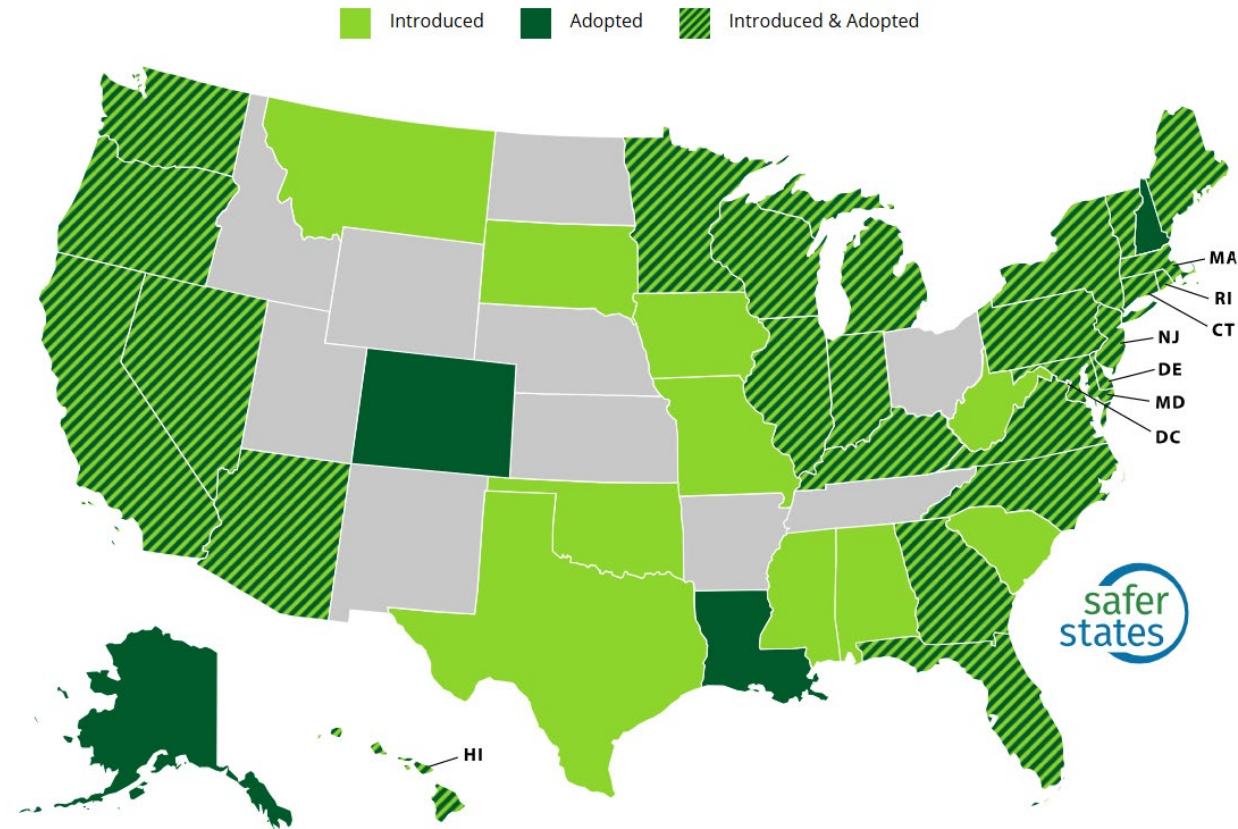
Department of Defense (DoD)

- PFAS provisions have been included in the NDAA the past few years (AFFF, cleanup, EPA actions, procurement bans)
- DoD is transitioning to PFAS-free AFFF as required per NDAA; DoD asked for a 1-year extension to 2026
- DoD was required to produce [a 2023 report listing critical applications that utilize PFAS](#)
- The Department of Defense (DoD) has posted [its 2025 update on critical uses of PFAS](#). Key takeaway:
 - **PFAS are critical to the national security of the United States**, not because they are used exclusively in military applications (although some are), but also because of the civil-military commonality and the potentially broad impact to the civilian marketplace. **There is a need to ensure that the dwindling number of domestic PFAS manufacturers remain able to and capable of providing PFAS critical to national security**, including those producing the feedstock minerals (fluorspar and possibly others) and chemicals and all the intermediate chemicals leading to the manufacture of fluoropolymers, fluorinated gases, and other critical fluorochemicals broadly defined as PFAS. **Otherwise, sourcing of mission critical PFAS may come from China and other foreign entities of concern, defeating the purpose of establishing domestic supply chains for key sectors such as semiconductors, batteries, and energetics.** To mitigate obsolescence risks and mission impacts, the DoD must implement a strategy to ensure short term domestic availability of the end-to-end PFAS supply chain critical for defense (e.g. supporting the manufacturing base to develop better abatement technologies and reduce emissions) while proactively seeking long term PFAS alternatives

Congress

- **Senate Environment and Public Works (EPW) Committee**
 - Bipartisan discussion draft was released for public input in Summer 2023.
 - Definition as introduced would exclude fluoropolymers.
 - The EPW staff are working on a new bill for consideration in the next year
- **House PFAS Action Act**
 - Bipartisan legislation; first introduced in 2019.
 - <https://www.govtrack.us/congress/bills/118/hr6805/text>
- **Democratic Bicameral [Forever Chemical Regulation and Accountability Act](#)** introduced April 2024
 - Legislation seeks to phase out non-essential uses of PFAS under a 10-year deadline while also seeking to prevent responsible parties from skirting cleanup liability for releases through bankruptcy maneuvers

- 30 States have adopted 170 policies on PFAS
- 36 States have introduced 218 policies on PFAS



State PFAS Product Bans (as per [Safer States](#))

Chart of States Restricting PFAS Chemicals in Consumer Products

Class-based PFAS bans in key sectors with implementation dates																		
	All Products	Artificial Turf	Apparel	Carpets / Rugs	Cleaning Products	Cookware	Dental Floss	Fabric Treatments	Firefighting Foam	Food Packaging	Incontinence Products	Juvenile Products	Menstrual Products	Personal Care Products	Pesticides	Ski Wax	Textile Articles	Turnout Gear
Alaska									2025									
California			★ 2025	2021**				2022**	2022	2023		2023	2029	2025			★ 2025	
Colorado		2026	2028	2024	2026	2026	2026	2024	2023	2024		2024	2026	★ 2025		2026	2028	
Connecticut			2028	2028	2028	2028	2028	2028	2021	2023		2028	2028	2028		2028	2028	★ 2028
Hawaii									2024	2024								
Illinois									2025									
Maine	2032	★ 2029	2029	2023	2026	2026	2026	2023	2022	2022		2026	2026	2026	★ 2030	2026	2026	
Maryland				2024					2024	2024				2025*				
Massachusetts																		2027
Minnesota	2032			2025	★ 2025	★ 2025	★ 2025	2025	2024	2024		2025	★ 2025	2025		2025	2025	
New Hampshire									2020									
New Jersey									2026									
New York			2025	2024					2020	2022								
Oregon										2025		2023**		2027				
Rhode Island		2029	2027	2027		2027		2027	2025	2025		2027	2027	2027		2027	2027	2027
Vermont		2026	2028	★ 2023		2026		★ 2023	2023	2023	★ 2026	2026	2026	2026		★ 2023	2026	
Washington	★ 2023**			2023				2023	★ 2020	★ 2022				2025			2023	
Totals	3	4	7	10	4	6	4	8	15	12	1	8	7	10	1	6	8	3

* not class-based; covers some PFAS substances but not all

** ongoing regulation

★ indicates the state was the first to adopt policy banning PFAS in that specified key sector

- **Final Reporting Rules (Maine and Minnesota)**

Maine: [PFAS in Products Law](#) was passed in 2021. (First broad state law in US)

- **PFAS Definition – one fully fluorinated carbon molecule (gases and polymers included)**

In April 2024, the Maine Legislature approved an Amendment (LD 1537) that changes the current PFAS in Products law. The resulting bill eliminates the broad-based reporting requirement beginning in 2025, as well as the 2030 total product ban.

- **Reporting Requirement**

- Removal of January 1, 2025 effective date

- **Required only for products in which PFAS usage is determined by DEP to be a Currently Unavoidable Use**

- **Additional Consumer Product Bans**

- January 1, 2026: Cleaning products, cookware, cosmetics, dental floss, juvenile products, menstrual products, textile articles, ski wax, upholstered furniture
- January 1, 2029: Artificial turf and apparel for severe wet conditions
- Additional products may be banned in 2032 and 2040

- **Added List of pre-approved CUUs not subject to potential bans in 2032 and 2040**

- Medical devices, drugs, etc., and products regulated by the FDA

Minnesota's [Amara's Law](#) requires manufacturers to :

- Provide written notification of a product for sale in the State that contains intentionally added PFAS, beginning ~~January 1, 2026~~
July 1, 2026

- Beginning **January 1, 2025**, prohibit sale of carpets, rugs, cleaning products, cookware, cosmetics, fabric treatments, juvenile products, ski wax, or upholstered furniture containing PFAS.
- Beginning **January 1, 2032**, all products containing intentionally added PFAS will be prohibited from sale or distribution in the State, unless it has been determined that the use of PFAS is a currently unavoidable use.
- **Testing and restriction provisions do not apply to any product that is a medical device or drug or that is otherwise used in a medical setting or in medical applications regulated by the U.S. Food and Drug Administration.**
- MN proposed [its reporting and fees](#) rules in April 2025, had a public hearing in May 2025, and final rules are expected later in 2025.
 - The proposal requires all PFAS to be reported by PFAS chemical (CAS or other numerical identifier) and volume ranges in product

with a reporting fee of \$1000

As of July 21, there have been **410 PFAS bills introduced in 41 states**: AL, AZ, CA, CO, CT, DE, FL, GA, HI, IL, IN, IA, KY, ME, MD, MA, MI, MN, MO, MS, MT, NE, NH, NJ, NM, NY, NC, OH, OK, OR, PA, RI, SC, SD, TN, TX, VT, VA, WA, WV, and WI. There have not been bills introduced recently as states are adjourning or pausing for the summer.

New Mexico: On April 9, Democratic Gov. Grisham signed [HB212](#) into law.

- This bill began as a total ban bill, but then exemptions and a CUU process was added
- Fluoropolymer applications exempted. language: "a product that contains fluoropolymers consisting of polymeric substances for which the backbone of the polymer is either a per or polyfluorinated carbon-only backbone or a perfluorinated polyether backbone that is a solid at standard temperature and pressure."
- **Medical exempted: "medical devices or drugs and the packaging of the medical devices or drugs that are regulated by the United States food and drug administration, including prosthetic and orthotic devices;"**
- PFAS ban date is January 1, 2032 (for products not exempted)
- Contains a confidential business information provision

It is the first state law that exempted fluoropolymers from future bans. A similar bill has been introduced in Ohio.

California: [Senate Bill 682](#) passed the Senate on June 3 by a vote of 28-7. **The bill began life as a total banned bill**, then got revised to allow for phased bans/CUUs, and finally passed the floor as amended below. Negotiated changes to the bill include:

- Removal of 2035 and 2040 complete product bans
- Maintaining product bans beginning January 1, 2028 for the following categories:
 - Cleaning products
 - Cookware
 - Dental floss
 - Juvenile Products
 - Food Packaging
 - Ski Wax

EU ECHA REACH RESTRICTION PROPOSAL



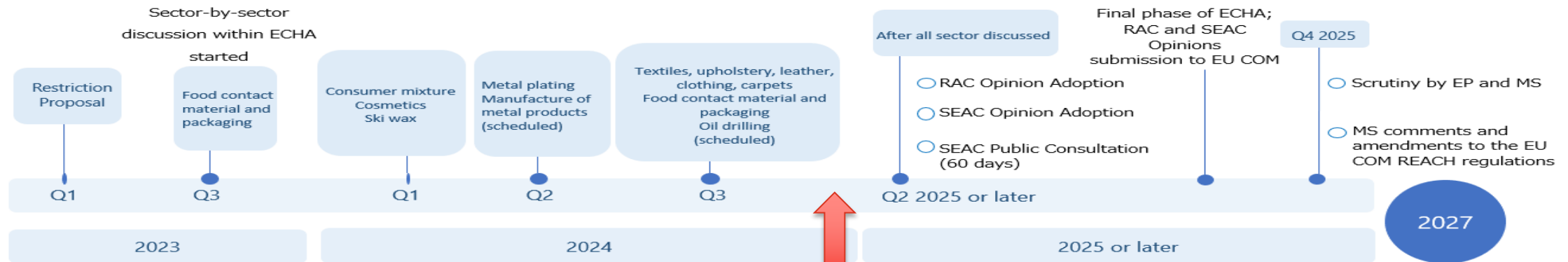
ECHA REACH Restriction Process

Background

- Five European countries (Germany, Denmark, the Netherlands, Sweden and Norway) prepared a joint restriction proposal to limit risks from a wide range of perfluoroalkyl and polyfluoroalkyl substances (PFAS) 5/11/20.
- **Justification for Regulatory Proposal**
 - “Due to the non-threshold nature of the hazards, the risks cannot be quantified...any release should be considered a proxy for risk.”
- **Current REACH Regulations**
 - Section 68 of REACH allows for ECHA to address any material production, introduction, or use of a material that “poses a risk to human health or the environment that is not adequately controlled.”
 - ⇒ **The underlying concern regarding PFAS are persistence (very persistent/resistent)**

Comment Process

- At the end of the consultation, ECHA had received more than **5,600 comments** from more than **4,400 organizations**, companies and individuals.
- The comments will now be reviewed by ECHA's scientific committees for **Risk Assessment (RAC)** and **Socio-Economic Analysis (SEAC)**, and those providing relevant evidence-based information will be considered in the opinion making process.
- The five countries who prepared the initial proposal will also review the consultation input and may update their initial proposal based on it.
- Comments submitted to ECHA can be found here: <https://echa.europa.eu/nl/comments-submitted-to-date-on-restriction-report-on-pfas>



We are here in the process

See: <https://echa.europa.eu/-/highlights-from-june-2025-rac-and-seac-meetings>

The Committees for Risk Assessment (RAC) and for Socio-Economic Analysis (SEAC) progressed their evaluation of the proposed restriction on PFAS.

Helsinki, 18 June 2025 – In their June meetings, RAC and SEAC continued evaluating the EU-wide proposal to restrict per- and polyfluoroalkyl substances (PFAS). Both committees reached provisional conclusions for PFAS uses in medical devices. Additionally, RAC reached provisional conclusions for lubricants and SEAC for transport. The committees also announced the sectors they will evaluate in their upcoming meetings.

For **September**, the tentative plan includes:

- Electronics and semiconductors (RAC and SEAC)
- PFAS manufacturing (RAC and SEAC)
- Horizontal issues, such as enforceability, concentration limits and analytical methods (RAC and SEAC)
- Energy (SEAC cont.)
- Lubricants (SEAC cont.)

After September, the committees will focus on:

- PFAS manufacturing (RAC and SEAC cont.)
- Horizontal issues (RAC and SEAC cont.)
- Electronics and semiconductors (SEAC cont.)

PFAS use sector	PFAS use [t]	Emissions [t]	Fraction of emissions compared to PFAS use [%]
✓ TULAC	5 472 040	1 431 511	26
✓ Food contact materials and packaging	1 495 936	43 708	3
✓ Metal plating and manufacture of metal products	30 675	183	0.5
✓ Consumer mixtures	55	55	100
✓ Cosmetics	995	995**	100**
✓ Ski wax	22	13	59
✓ Applications of fluorinated gases	25 369 435	1 942 313	8
✓ Medical devices	3 964 549	512 432	13
✓ Transport*	3 409 168 (17 850 960)	49 824 (508 839)	1.5 (2.9)
Electronics and semiconductors	1 419 743	293 248	21
Energy sector	893 520	16 272	1.8
✓ Construction products	550 564	152 555	28
✓ Lubricants	102 072	20 698	20
✓ Petroleum and mining	209 124	77 018	37

✓ *Indicates sectors reviewed*

July 2025 European Chemicals Industry Action Plan

- Section 5.4 of [the Plan: Providing clarity on PFAS](#) The scientific assessment of the Universal PFAS42 restriction by the ECHA's committees is ongoing and scheduled to conclude in 2026. The Commission is committed to presenting a proposal as soon as possible after receiving ECHA's opinion, with the overall objective of minimizing PFAS emissions.
- The Commission will consider **PFAS ban in consumer uses such as cosmetics, food contact materials and outdoor clothing**. Where adequate alternatives in terms of performance and safety are not available, **the continued use of PFAS in industrial applications may be allowed for critical applications, such as health, defense, semiconductors, and other strategic sectors, under strict conditions until acceptable substitutes are found**. Derogations for uses will need to be accompanied by requirements to reduce emissions at all lifecycle stages to limit the release of pollutants into the environment and by clear incentives to innovate.
- The Commission will support industry efforts towards mitigation and remediation, to achieve increased water resilience, to reinforce Ocean health and address pollution of water, soil and air.
- To support the transition away from PFAS, the Commission is pursuing a comprehensive strategy that combines regulation with other measures. They will include targeted investment in research, innovation for safe and sustainable alternatives, and enhanced coordination across EU institutions and Member States, expert networks to share knowledge and solutions. EU Innovation Hubs will prioritize action to find safe and sustainable alternatives to PFAS. The Commission will promote a shift from PFAS towards safer alternatives.
- The EU must take decisive efforts to clean up sites already strongly polluted by such substances. Cleanup should be based on the polluter pays principle, with public money allocated to clean up orphan sites, where no liable entity could be found. Although remediation efforts are very costly, research and innovation can significantly reduce these costs through novel, including bio-based, technologies, which will be promoted in the Bioeconomy Strategy.
- A new EU-wide PFAS monitoring framework will be developed to centralize information, identify pollution hotspots, highlight successful remediation practices, and collect data from relevant legislation. The Commission will explore how to best enhance information sharing and communication on PFAS pollution and substitution and will launch a dialogue bringing together stakeholders to support a holistic view of PFAS-related pollution challenges. Also, to tackle legacy pollution, the Commission will aim to set up a public-private initiative to achieve a technological breakthrough in feasible and affordable methods for the detection and remediation of PFAS.

DAIKIN EFFORTS

Daikin Efforts

Developing Sustainable Solutions

Fluoro materials, including those considered PFAS, are used in essential societal applications such as semiconductors, automobiles, telecommunications, medicine and medical devices, energy, and HVAC. They contribute to a variety of advanced industries and play an important role in promoting global sustainability solutions such as carbon neutrality and Green Transformation (GX). Daikin will continue to comply with regulations and supply those materials that have met rigorous scientific evaluation in meeting the essential needs of society.

We strive to minimize the environmental and social impact of our products throughout their lifecycle by engaging in sustainable production practices. As a responsible manufacturer, we are committed to contributing to social advancement.



Cooperation with Government

The PFAS manufactured by Daikin or used in its manufacture of products have been approved by regulatory authorities such as the U.S. Environmental Protection Agency (EPA), the U.S. Food and Drug Administration (FDA), the European Chemicals Agency (ECHA), and Japan's Ministry of Economy, Trade, and Industry (METI).

Daikin's manufacturing sites around the world will continue to work closely with regulatory authorities to comply with regulations and strive to reduce any environmental impact.

Path Forward

Minimizing PFAS Emissions

Daikin is investing more than \$300 million to capture PFAS in our water discharges. We have achieved our internal target of recovering 99% of the polymerization emulsifiers released from the fluoropolymer manufacturing processes in the United States and Europe.

All Daikin manufacturing facilities are now working towards a new internal target of 99.9% PFAS (*1) capture in process water discharges. Once achieved, this ambitious goal will help minimize the potential impacts of PFAS manufacturing and set a new benchmark for responsible PFAS-related manufacturing across the globe.

* Refers to PFAS that can be individually identified and quantified by analytical methods accepted by legislative and regulatory authorities.



Continuous Improvement

Daikin is committed to continuously improving all manufacturing processes and exploring and implementing new technologies to ensure the safe manufacture of chemical products.

As part of this effort, we are transitioning all fluoropolymer manufacturing processes to more sustainable new technologies. For fluoroelastomers, we aim to switch to products using new technologies by 2025, and for other fluoropolymers, we aim to switch to new technologies by around 2030. Additionally, for new manufacturing facilities constructed from 2023 onwards, we are introducing manufacturing methods that adopt sustainable technologies.

Recycling Initiatives

Daikin is working on the collection, reuse, recycling, and destruction of fluorochemical products it manufactures, aiming to reduce the environmental impact throughout their lifecycle for a circular economy.



Positively Innovative