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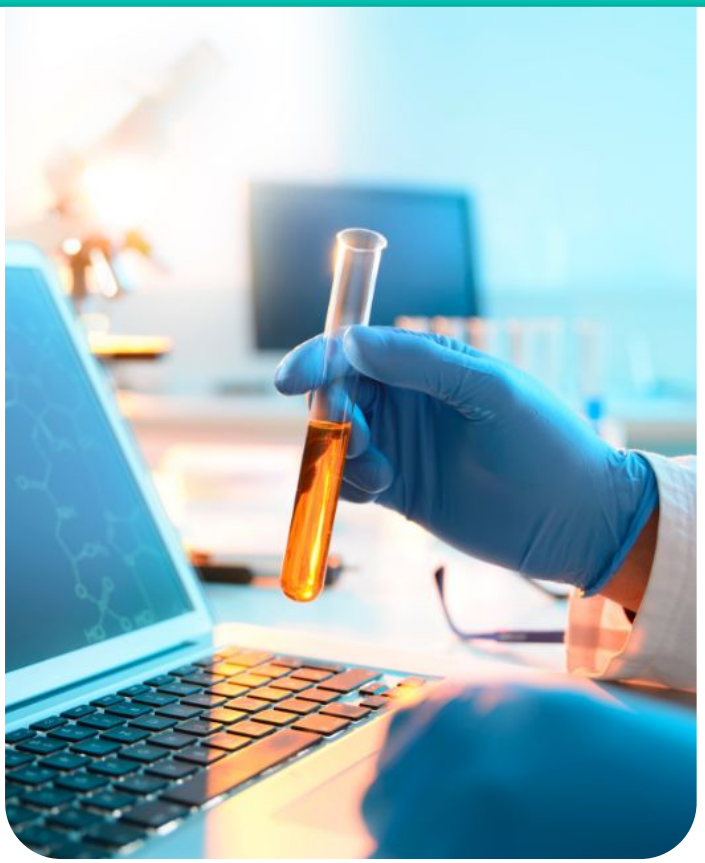

PFAS Under Pressure: Key Trends and Challenges Worldwide

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01. About The Author

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Valentina is a Senior Regulatory Compliance Specialist and Team Lead at Compliance & Risks. She is responsible for monitoring, analyzing and evaluating global regulations across a wide range of topics, with a focus on chemicals legislation, and leads a team of international product regulatory analysts/specialists. Valentina also works closely with clients on specific projects.

Valentina has been working with Compliance & Risks since 2021 and supports clients in their global legal compliance challenges with a particular interest and focus on chemicals management, chemicals in products, GHS and nanotechnology.

Valentina holds a Master's Degree in Chemistry, has 8 years of regulatory experience in the oil and gas industry and is also qualified as an ISO 9001:2015 Quality Management Systems Internal Auditor. She is an Italian native speaker and also speaks English.

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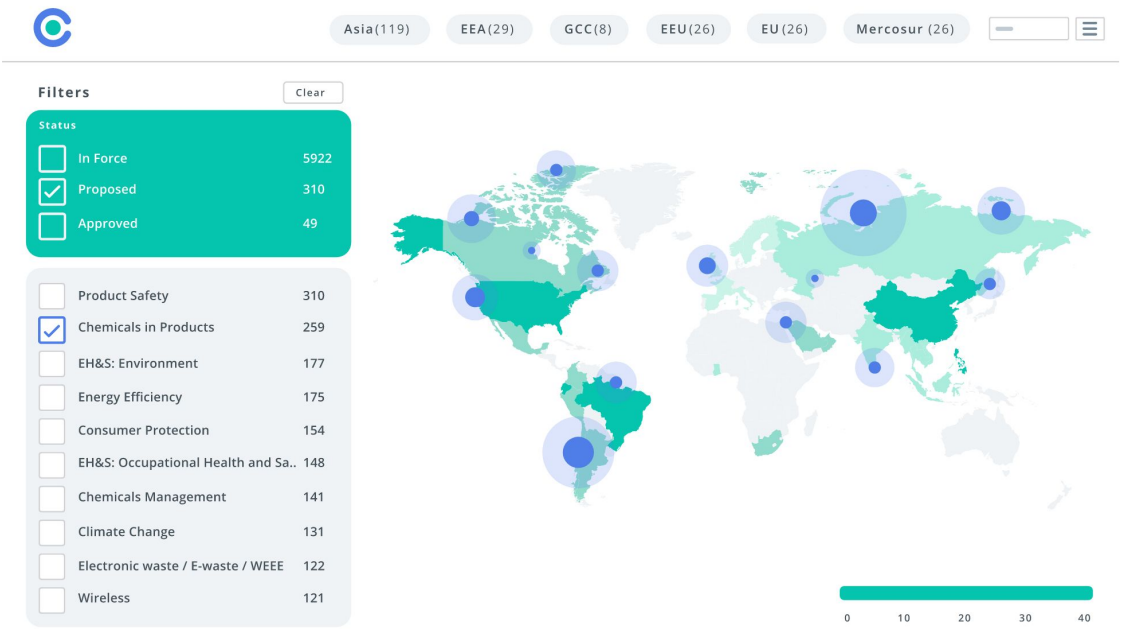

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03. Introduction

Per- and polyfluoroalkyl substances (PFAS) are under increasing global scrutiny due to their persistence in the environment, potential for bioaccumulation, and risks to human health.

While regulatory developments in the U.S. and European Union often dominate global discussions, international frameworks such as the Stockholm and Rotterdam Conventions are significantly influencing global PFAS policy. These treaties seek to restrict or eliminate hazardous chemicals, driving regulatory actions in other regions as well.

Notably, Canada has proposed regulating PFAS as a class rather than individually - a trend that aligns with strategies in the U.S. and EU.

This global overview examines PFAS regulatory developments across jurisdictions outside the U.S. and EU, highlighting key trends, challenges, and implications for industries worldwide.

04. PFAS Regulations Globally (Excluding the U.S. and EU)

4.1. World – International Frameworks

Stockholm Convention on Persistent Organic Pollutants (POPs)

The Stockholm Convention is a global treaty aimed at protecting human health and the environment from persistent organic pollutants (POPs) - chemicals that remain in the environment for long periods, bioaccumulate in living organisms, and pose significant risks to both human health and ecosystems. Several PFAS have been added to the list of POPs under the Convention due to their hazardous properties:

- In 2009, **perfluorooctanesulfonic acid (PFOS)**, its salts, and **perfluorooctane sulfonyl fluoride (PFOSF)** were added to Annex B, which restricts the production and use of these chemicals, with certain exemptions allowed.
- In 2019, **perfluorooctanoic acid (PFOA)**, its salts, and PFOA-related compounds were added to Annex A, which requires the elimination of production and use, with some exemptions.
- In 2022, **perfluorohexanesulfonic acid (PFHxS)**, its salts, and PFHxS-related compounds were added to Annex A.
- In 2022, the POPs Review Committee has recommended the inclusion of **long-chain perfluorocarboxylic acids (LC-PFCAs)**, their salts, and related compounds in Annex A. This recommendation is set to be discussed at the twelfth Conference of the Parties in 2025.

The Secretariat, in consultation with the POPs Review Committee, maintains an updated list of substances covered by listing of PFHxS, its salts and PFHxS-related compounds as well as PFOA, its salts and PFOA-related compounds, which can serve as a valuable resource for companies.

Rotterdam Convention – Prior Informed Consent (PIC)

The Rotterdam Convention facilitates the regulation of hazardous chemicals in international trade through the Prior Informed Consent (PIC) procedure, ensuring that countries can make informed decisions about the import and export of such substances. Chemicals included in Annex III of the Convention require explicit consent from importing nations before they can be traded.

Several PFAS compounds have been listed under this framework:

- At the sixth meeting of the Conference of the Parties (COP6) in 2013, **PFOS**, its salts, and related derivatives such as perfluorooctane sulfonates, sulfonamides, and sulfonyls were added to Annex III under Decision RC-6/7.
- At the tenth meeting of the Conference of the Parties (COP10) in 2022, **PFOA**, its salts, and PFOA-related compounds were also added to Annex III under Decision RC-10/7.

OECD Guidance

The OECD (Organization for Economic Co-operation and Development) has issued several guidelines and reports related to the regulation and management of PFAS. While the OECD itself does not enforce regulations, it provides internationally recognized guidance to help governments and industries manage PFAS risks.

4.2. Oceania

Australia

Australia regulates PFAS through a range of legislative instruments to manage their import, manufacture, and use.

One of the key frameworks is the *Industrial Chemicals Environment Management (Register) Instrument 2022 (IChEMS Register)*, which classifies chemicals based on their risk characteristics. In December 2023, Australia amended this register by adding several PFAS-related chemicals to Schedule 7. This includes **PFOA, PFOS** and **PFHxS**, along with related compounds. The inclusion of these chemicals in Schedule 7 of the IChEMS prohibits their import, manufacture, use, and export, with exceptions for unintentional trace contamination and for products in use prior to the effective date of the decision.

The amendment also sets limits on the allowable presence of these substances in mixtures and articles, as detailed below. The compliance deadline is July 1, 2025.

Substance	Requirement	Effective Date
Perfluorohexanesulfonic acid (PFHxS), including its linear and branched isomers, their salts and any substance containing a linear or branched perfluorohexylsulfonyl moiety that can degrade to PFHxS.	Substances, mixtures, and articles: • PFHxS and its salts ≤ 0.025 mg/kg; • PFHxS-related compounds ≤ 1 mg/kg (each or sum)	July 1, 2025
Perfluorooctanesulfonic acid (PFOS), including any of its branched isomers, its salts, perfluorooctanesulfonyl fluoride, and any substance containing a linear or branched perfluorooctanesulfonyl moiety and capable of degrading to PFOS (linear or branched).	Substances, mixtures, and articles: • PFOS and its salts ≤ 0.025 mg/kg; • PFOS-related compounds ≤ 1 mg/kg (each or sum)	July 1, 2025
Perfluorooctanoic acid (PFOA), including any of its branched isomers, its salts and any related compound that contains a linear or branched perfluoroheptyl (C7H15C) group and which can degrade to linear or branched PFOA.	Substances, mixtures, and articles: • PFOA and its salts ≤ 0.025 mg/kg; • PFOA-related compounds ≤ 1 mg/kg (each or sum)	July 1, 2025

The *Australian Industrial Chemicals Introduction Scheme (AICIS)* plays a critical role in regulating PFAS chemicals. Importers and manufacturers *(introducers)* of these chemicals must comply with legal obligations under the *Industrial Chemicals Act 2019*. This includes registering their business and categorizing their chemical imports or manufacturing *(introduction)* activities before they can lawfully introduce these chemicals into Australia.

In April 2024, AICIS updated its categorization criteria to clarify which fluorinated chemicals pose the highest concern to human health and the environment. Under this update, fluorinated chemicals of highest concern are now defined as '*designated fluorinated chemicals*' in the *Industrial Chemicals (General) Rules 2019*. This new term captures a slightly different subset of fluorinated chemicals than those covered previously. The purpose of this amendment is to ensure that high-concern fluorinated chemicals cannot be categorized as **exempted** (*very low risk*) or **reported** (*low risk*) in the categorization process. In other words, the indicative human health and environmental risks for the introduction of a '*designated fluorinated chemical*' are always considered medium to high risk. As a result, the introduction of these chemicals is classified as an **assessed** introduction, meaning an assessment certificate from AICIS must be obtained before the chemical can be imported or manufactured.

Additionally, Australia enforces import and export controls on PFAS chemicals listed under the Rotterdam Convention. For chemicals subject to the Rotterdam Convention, such as **PFOS** and **PFOA**, prior authorization is required for import or export. Under the *Industrial Chemicals Act 2019*, any importer or exporter must obtain approval from AICIS before handling these chemicals. Non-compliance can result in penalties, and those seeking to import or export these chemicals must apply for annual authorization, subject to a fee.

New Zealand

New Zealand regulates PFAS under the *Hazardous Substances and New Organisms Act (HSNO)*, which serves as the country's legal framework for chemical management. The HSNO Act implements New Zealand's obligations under the Stockholm Convention by prohibiting the import, manufacture, use, and storage of persistent organic pollutants, with limited exceptions. PFAS compounds regulated as POPs are listed in Schedule 2A of the Act, including **PFHxS**, its salts and related compounds, **PFOS** and its derivatives, as well as **PFOA**, its salts, and related compounds. The Act defines POPs broadly to include not only the chemicals themselves but also mixtures and manufactured articles containing them, except when present in trace amounts as unintentional contaminants.

New Zealand ratified the Rotterdam Convention in 2003, requiring that exports of chemicals listed under the Convention receive prior consent from the importing country. Similarly, any proposed import of these chemicals into New Zealand requires government approval. Import decisions for hazardous substances, including Rotterdam Convention chemicals, are made under the *HSNO Act*, while export decisions fall under the *Imports and Exports (Restrictions) Prohibition Order (No. 2) 2004*.

Beyond this legislative framework, New Zealand has taken additional measures to mitigate PFAS contamination in specific product categories. The country has implemented a phased ban on PFAS-based firefighting foams due to their environmental persistence and health risks.

Furthermore, in January 2024, the Environmental Protection Authority (EPA) announced a ban on PFAS in cosmetic products, which will take effect by December 31, 2026. These steps reflect New Zealand's commitment to reducing PFAS exposure and align with global efforts to phase out harmful substances in consumer and industrial products. By targeting key sources of contamination, New Zealand aims to protect both public health and the environment from the long-term effects of PFAS pollution.

4.3. East Asia

China

Since 2023, China has included specific PFAS in the *Catalogue of Commodities Prohibited from Import and Export*, which serves as a tool for implementing both the Stockholm Convention and the Rotterdam Convention in the country. In June 2023, **PFHxS**, its salts, and related compounds were added to the prohibited import/export lists. Later, in December 2023, China further strengthened its PFAS regulations by adding **PFOS** and its salts, and **PFOSF**.

In addition to the import/export restrictions, China has included the same substances, as well as **PFOA**, its salts, and related compounds in the list of *New Pollutants for Priority Control (2023 Edition)*, applying bans, restrictions and environmental risk control measures as follows, effective from March 1, 2023:

- **PFOS**, its salts, and **PFOSF**
  - Production, processing, use, import, and export are completely prohibited (the import and export ban took effect from January 1, 2024; prior to that date, a clearance notification for environmental management on import/export of toxic chemicals was required).
- **PFOA**, its salts, and related compounds
  - New production is prohibited.
  - Processing and use are prohibited (with exceptions).
  - Import and export require prior clearance from environmental authorities.
- **PFHxS**, its salts, and related compounds
  - Production, processing, use, import, and export are completely prohibited.

PFOA and **PFOS** were also included in the *Catalogue of Strictly Restricted Hazardous Chemical Substances (2023 Edition)*. Accordingly, importers and exporters of regulated PFAS are required to obtain a Clearance Notification for Environmental Management before importing/exporting these substances, which reiterates the environmental risk control measures contained in the Order on the List of *New Pollutants for Priority Control (2023 Edition)*. However, as regards PFOS, from January 1, 2024 the import and export of these substances have been completely banned, as already mentioned above.

In November 2023, the Solid Waste and Chemicals Management Technology Center published a reference list of PFOA-related substances, identifying 363 compounds subject to regulation under the Order on the List of *New Pollutants for Priority Control (2023 Edition)* and the *Catalogue of Strictly Restricted Hazardous Chemical Substances (2023 Edition)*.

As the latest move in PFAS regulation, China launched a consultation in February 2025, open until May 19, 2025, to gather feedback from relevant units regarding the indicative lists for **long-chain PFCAs**, their salts and related compounds, as well as the updated lists for **PFOA** and **PFHxS** and their related compounds. The consultation focuses on the potential inclusion of long-chain PFCAs and their salts in the Stockholm Convention Annex A with the goal to collect additional information or comments to support China's compliance with the Convention's obligations.

Japan

In Japan, the regulation of PFAS falls under the *Chemical Substances Control Law (CSCL)*. This law serves as a key instrument for implementing both the Stockholm Convention and the Rotterdam Convention in Japan and designates certain PFAS as *Class I Specified Chemical Substance*s. The production, import, and use of Class I Specified Chemical Substances are prohibited in principle. However, essential uses may be allowed, but only with special permits. Additionally, the import of specific products listed under Government Order is prohibited if they contain these substances. The following PFAS are currently classified as Class I Specified Chemical Substances under the CSCL:

- **PFOS** or its salts
- **PFOSF**
- **PFOA**, its salts and related compounds
- **PFHxS** or its salts

Certain products are prohibited from import if they contain PFAS due to their environmental and health risks. For example, fire extinguishers and foam extinguishing agents are restricted because they can release harmful chemicals into water sources.

Similarly, etching agents used in semiconductor manufacturing are banned to limit industrial emissions of PFAS. Everyday consumer goods are also affected, such as water and oil repellent treated fabrics, clothing, and paper, which are common in outdoor gear and packaging. Additionally, detergents, paints, varnishes, adhesives, and sealants face restrictions, as they contribute to long-term chemical persistence in homes and workplaces. Even insect repellents for termites and ants, as well as commercial photographic film and paper, are included in the ban, reflecting the broad scope of PFAS regulations.

More detailed information on the list of PFAS-containing products prohibited from import can be found in the *Import Clearance Procedures for Chemical Substances under CSCL*, issued regularly by the Japanese Ministry of Economy, Trade and Industry (METI) and last updated in February 2025. This document assists stakeholders in navigating import clearance procedures related to the Act and includes, among other details, a comprehensive list of restricted products and their corresponding HS codes (Annex 2).

Japan continues to strengthen its PFAS regulations in alignment with the Stockholm Convention. In response to the 2022 decision at COP10, which added **PFHxS**, its salts, and related substances to Annex A (Elimination), Japan has proposed additional regulatory measures to further restrict these chemicals. The proposal, set to take effect in 2025, includes a ban on the production and import of **PFHxS-related substances**, prohibition of non-essential uses, and import restrictions on products containing these substances, such as fire extinguishers, semiconductor agents, and water-repellent textiles.

South Korea

South Korea regulates PFAS through the *Persistent Organic Pollutants (POPs) Control Act*, a regulatory framework that fulfills the country's obligations under the Stockholm Convention. This Act specifically governs the production, use, import, and export of substances listed in Annex A *(prohibited)* and Annex B *(restricted)* of the Stockholm Convention, while allowing certain exemptions under specific conditions.

A key part of enforcing this Act is *Notice No. 2020-191*, which provides detailed regulations for persistent pollutants, including the substances covered, the exemptions available, and how they are enforced. Over time, this Notice has been updated to address the regulation of PFAS and to ensure that South Korea is managing these substances effectively. The updates, along with clear deadlines and exemptions, have enabled South Korea to make progress toward eliminating harmful persistent pollutants while giving industries the time necessary to transition. These amendments reflect South Korea's commitment to reducing the environmental and health risks associated with PFAS while balancing the needs of its industries.

A significant update occurred on June 9, 2023, with the issuance of *Notice No. 2023-129.* This revision expanded the listing of **PFOA** and its related compounds and introduced Index 2022-31, which banned the manufacture, import, and use of 147 **PFHxS-related compounds**. At the same time, certain exemptions for PFOA were granted, with a phase-out deadline set for June 2, 2026. These exemptions allowed for the continued use of **PFOA** in protective textiles, semiconductor manufacturing, and medical devices. However, for **PFHxS**, there is no specific exemption currently listed under these revisions.

On October 2, 2024, *Notice No. 2024-186* was issued, refining the regulatory framework further.

This update provided more precise chemical names, CAS numbers, and clarified the identification of specific substances as persistent pollutants. It also revised certain exemptions and their expiration deadlines to ensure that the regulations remain clear and precise. A key amendment introduced in *Notice No. 2024-186* clarified that substances listed in Annex A or Annex B of the Stockholm Convention are not considered persistent pollutants under the Act if they are present as unintentional trace impurities or by-products during manufacturing processes, as long as they do not exceed certain technical limits regarding impurity levels or removability. This ensures that the regulation focuses on intentionally manufactured substances, excluding by-products or trace impurities unless they exceed defined thresholds.

Reviewing the specific regulations under the *POPs Control Act* and *Notice No. 2020-191*, we can see that Table 1 lists key entries for various PFAS substances. These include:

- **Entry 2009-21: PFOS**, its salts, and **PFOSF**, along with related compounds such as **K-PFOS**, **Li-PFOS**, and others.
- **Entry 2019-30: PFOA**, its salts, and related compounds, including 353 listed substances.
- **Entry 2022-31: PFHxS**, its salts, and related compounds, which includes 147 listed substances.

Table 2 of the Notice provides further details on exemptions for **PFOS, PFOA**, and **PFHxS**. For **PFOS** (Entry 2009-21), exemptions are granted for its use in fire-fighting foam already installed in mobile and fixed systems, with the phase-out deadline set for December 31, 2026.

For **PFOA** (Entry 2019-30), several uses are allowed, with a phase-out deadline of June 2, 2026. These include the production of protective textiles (e.g., oil and water resistant textiles for worker safety), semiconductor manufacturing, film coatings, medical devices, and various fluoropolymer production processes (e.g., PTFE, FEP, fluoroelastomers). After this deadline, these processes will need to transition to safer alternatives.

Taiwan

Taiwan, while not a party to the Rotterdam Convention or the Stockholm Convention due to its non-UN status, aligns its chemical regulations with international agreements to facilitate trade and compliance. The Environmental Protection Administration (EPA) of Taiwan regulates persistent organic pollutants, including PFAS, under the *Toxic and Concerned Chemical Substances Control Act (TCCSCA)*. The *Notice on Administrative Issues on Regulated Toxic Chemicals*, which is based on TCCSCA, governs PFAS restrictions, outlining control concentration standards and permissible uses.

Currently regulated PFAS include **PFOS**, **PFOS-Li**, **PFOSF**, **PFOA**, and **PFHxS**, its salts, and PFHxS-related compounds. While the manufacture, import, sale, and use of **PFHxS** and related compounds are prohibited (except for research, testing, and education), other PFAS are permitted in limited applications, such as semiconductor photolithography and etching processes, photographic film coatings, and industrial uses in closed systems.

In October 2024, the Ministry of Environment (MOE) of Taiwan proposed a *draft amendment to the Notice on Administrative Issues on Regulated Toxic Chemicals* to expand PFAS restrictions in accordance with the Stockholm Convention. This proposal seeks to add **5 more PFOS-related compounds** and **352 PFOA-related substances** to the List of Toxic Chemical Substances, further tightening regulations by limiting their use to specific exemptions, such as research, testing, education, and hard metal plating in closed systems.

Hong Kong

Hong Kong regulates PFAS under the *Hazardous Chemicals Control Ordinance (Cap. 595)*, which establishes a permit system to oversee the import, export, manufacture, and use of hazardous chemicals, including those identified under the Stockholm and Rotterdam Conventions.

PFOS, its salts, **PFOSF**, and **PFOA**, its salts, and related compounds are classified as *Type 2 Chemicals* under Schedule 2, Part 1 of the Ordinance, subjecting them to strict regulatory control. Individuals or entities intending to handle these chemicals must obtain a permit from the Environmental Protection Department (EPD), and any shipment must be accompanied by an import/export license issued under the *Import and Export Ordinance (Cap. 60)*. There are five types of permits available, including Import, Export, Manufacture, Use, and Transshipment/Transit Permits, which apply to manufacturers, industrial users, and other relevant entities. However, listed PFAS are exempt from certain restrictions (on export, import, and use) when they are a constituent element of a manufactured product or are part of an article in transit through Hong Kong. The Ordinance imposes specific restrictions on the export, import, and use of PFAS, meaning that these activities cannot occur without the proper permits. Unauthorized handling of these substances, including unlicensed trade or use, may result in fines and imprisonment. Additionally, permit holders are required to submit regular activity reports to ensure compliance with the regulations.

4.4. Southeast Asia

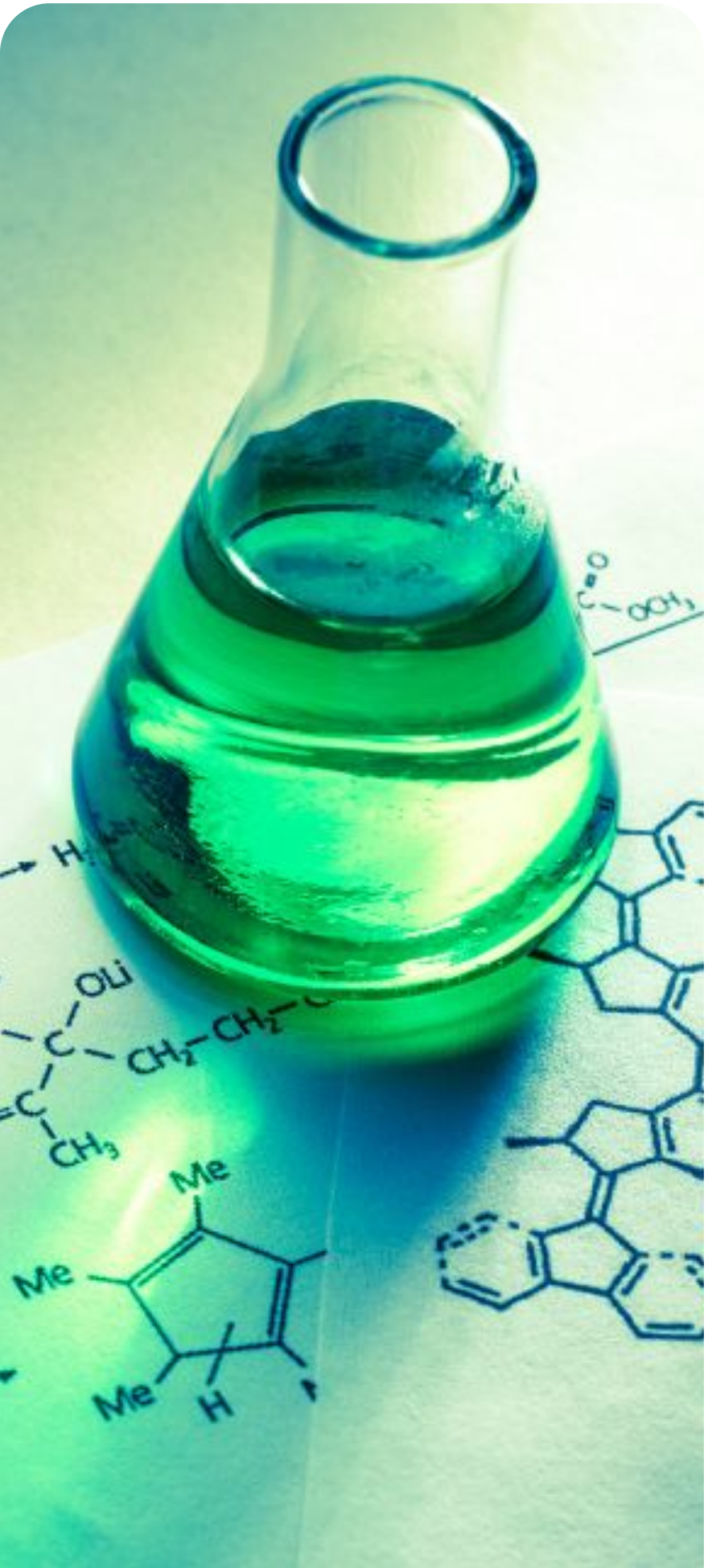
Singapore

Singapore, as a Party to the Stockholm Convention and the Rotterdam Convention, regulates PFAS under the *Environmental Protection and Management Act ("EPMA")* and the *Environmental Protection and Management (Hazardous Substances) Regulations ("EPM(HS) Regs")*. The National Environment Agency (NEA), as the Competent Authority, reviews and implements controls over PFAS in accordance with these Conventions. **PFOS** has been regulated as a hazardous substance since 2008, while **PFOA**, its salts and related compounds, and **PFHxS**, its salts and related compounds, have been subject to licensing control since 2020, as they were included in the list of chemicals of concern under the Conventions, leading to their regulatory control.

Following the listing of **PFOA**, its salts and PFOA-related compounds, and **PFHxS**, its salts and PFHxS-related compounds under Annex A of the Stockholm Convention, Singapore imposed further restrictions on their use and trade through *Circular NEA/HS/6.6 of 2022*. The circular confirmed that **PFOA**, its salts, and related compounds were prohibited from import and export, except for specific uses allowed under the Convention. Additionally, as of October 22, 2022, **PFOA**, its salts, and PFOA-related compounds were included in Annex III of the Rotterdam Convention, making them subject to the Prior Informed Consent (PIC) procedure. This requires prior approval from the Chemical Control and Management Department (CCMD) for every export, with notification at least one month in advance. Furthermore, **PFHxS**, its salts, and related compounds, as well as products containing these chemicals, were fully banned from manufacture, import, and export as of June 17, 2023, though companies were allowed to deplete pre-existing stocks locally.

On March 15, 2024, NEA issued another *Circular (NEA/HS/6.6)* announcing the phase-out of firefighting foams containing PFAS chemicals listed under the Stockholm Convention. Effective January 1, 2026, the import and use of firefighting foams containing **PFOA** and **PFOS**, including their salts and related compounds, will be prohibited. **PFHxS**, its salts, and related compounds, which have no exemption under the Convention, will also be restricted. However, companies may continue using firefighting foams after this date if PFAS concentrations are below the following threshold limits: 25 ppb for PFOA, 10,000 ppb for PFOS, and 100 ppb for PFHxS. Organizations storing or using foams exceeding these limits must engage NEA-licensed Toxic Industrial Waste Collectors for proper disposal.

Additionally, on January 31, 2025, Singapore's Ministry of Sustainability and the Environment issued two key regulatory updates: the *Environment Protection and Management Act 1999 (Amendment of Second Schedule) Order 2025* (S 85 of 2025) and the *Environment Protection and Management (Hazardous Substances) (Amendment) Regulations 2025* (S 86 of 2025) to regulate **LC-PFCAs**, **C9–C21**, their salts, and related compounds as hazardous substances. Both will take effect on August 1, 2025. These substances are recommended for listing in Annex A (Elimination) of the Stockholm Convention on Persistent Organic Pollutants in 2025. As a signatory to the Convention, Singapore is acting preemptively to control **LC-PFCAs**. Under the amended regulations, **LC-PFCAs** will be classified as hazardous substances, requiring companies to obtain a valid Hazardous Substances (HS) Licence from the National Environment Agency (NEA) to import, export, manufacture, or sell them.



A HS Permit will be required for storage or use. Without a valid licence or permit, the Order effectively prohibits the handling of **LC-PFCAs** - whether on their own or when present in any substance, mixture, or product - with no specific exemptions provided.

Thailand

Thailand has implemented stringent regulations to manage **PFOA** and related compounds, in alignment with the Stockholm Convention. The Ministry of Industry's *Notification No. 7 B.E. 2565 (2022)* amended the *List of Hazardous Substances under the Hazardous Substances Act B.E. 2535 (1992)* by adding **PFOA**, its salts, and related compounds to List 5.1, classifying them into two categories: *3rd Category* and *4th Category.*

The regulated PFOA-related substances include:

- **Perfluorooctanoic acid** (CAS no. 335-67-1)
- **Ammonium perfluorooctanoate** (CAS no. 3825-26-1)
- **Sodium perfluorooctanoate** (CAS no. 335-95-5)
- **Potassium perfluorooctanoate** (CAS no. 2395-00-8)
- **Silver perfluorooctanoate** (CAS no. 335-93-3)
- **Perfluorooctanoyl fluoride** (CAS no. 335-66-0)
- **Methyl perfluorooctanoate** (CAS no. 376-27-2)
- **Ethyl perfluorooctanoate** (CAS no. 3108-24-5)

These substances are classified as *3rd Category* when they fall within the scope of specific exemptions under the Stockholm Convention. The same substances are classified as *4th Category* when they fall outside the scope of these specific exemptions, except when present as impurities at concentrations not exceeding those specified in the Notification.

In Thailand, *3rd Category* substances require a license for their production, import, export, or possession, while *4th Category* substances are prohibited by law, meaning their production, import, export, or possession is not allowed.

In February 2023, Thailand's Department of Industrial Works (DIW) issued *Order No. 42* to enforce the management of PFOA and related substances. The Order required businesses to report their inventories and ensure the disposal of these chemicals. It targeted the same eight key PFOA-related chemicals, mandating businesses to submit inventory reports (Vor Or./OrKor. 33 form) and provide proof of destruction (Vor Or./OrKor. 34 form) by specified deadlines. This move reinforced Thailand's commitment to eliminating high-risk PFAS in accordance with its international obligations under the Stockholm Convention.

In November 2023, the DIW proposed expanding the regulation to include **PFHxS**, its salts, and related compounds. This proposal would add these substances to Annex 5.1 of the *List of Hazardous Substances* as *3rd Category chemicals*, covering 147 substances in total. The draft notification requires producers, importers, exporters, or possessors of these chemicals to apply for a license within 30 days of the regulation's enactment. If approved, the regulation would further align Thailand's PFAS controls with international environmental standards.

Vietnam

Vietnam regulates PFAS under *Decree No. 113/2017/ND-CP*, which implements the *Chemicals Law No. 06/2007/QH12*. Specific PFAS, including **PFOS**, its salts, sulfonates, sulfonamides, and sulfonyls, as well as **PFOA**, its salts and related compounds, and **PFHxS**, its salts and related compounds, are listed in Appendix II and Appendix V of the decree. Appendix II designates these substances as restricted chemicals for industrial production and trade, requiring a license prior to such activities. Additionally, under Appendix V, these PFAS are subject to compulsory declaration, meaning entities must submit prior notification before producing or importing them.

These regulatory measures help Vietnam manage the environmental and health risks associated with PFAS and reflect its commitments under key international agreements, including the Stockholm and Rotterdam Conventions.

Myanmar

Myanmar has implemented regulations to restrict the use of PFAS. Under Notification No. 3/2016, **PFOS**, its salts, and **PFOSF** are classified as prohibited chemicals.

4.5. North America

Canada

In Canada, several PFAS have been regulated since 2012 due to their potential harm to the environment and human health. These substances, including **PFOS** and its salts and precursors, **PFOA** and its salts and precursors, and **LC-PFCAs** and their salts and precursors, were assessed under the Canadian Environmental Protection Act (CEPA). As a result, they were listed on Schedule 1 of CEPA and are subject to the *Prohibition of Certain Toxic Substances Regulations, 2012*. The manufacture, use, sale, offer for sale, and import of **PFOS, PFOA, LC-PFCAs**, and their salts and precursors, as well as products containing them, are prohibited under these regulations, with certain exemptions. In May 2022, a proposal was published to update and replace these 2012 regulations, aiming to remove or phase out most of the remaining exemptions. Additionally, some PFAS notified under the New Substances Notification Regulations (Chemicals and Polymers) have been subject to Ministerial conditions, prohibitions, and significant new activity provisions under CEPA.

Recent developments in Canada are aligned with similar approaches being explored in other jurisdictions, including the European Union and certain U.S. states, to regulate PFAS as a class. Back in April 2021, the Government of Canada published a Notice of Intent in the Canada Gazette, announcing plans to regulate PFAS as a class. This approach is intended to prevent regrettable substitutions and better address situations where individuals may be exposed to multiple PFAS compounds simultaneously. As part of this initiative, the government committed to publishing a State of PFAS Report within two years, inviting stakeholder feedback, with additional opportunities for input throughout the process.

Key milestones for this initiative include:

- **May 20, 2023:** The Draft State of PFAS Report and Risk Management Scope were published, followed by a 60-day public comment period.
- **July 13, 2024:** An updated draft report and revised risk management scope were published for a second 60-day public comment period.
- **March 5, 2025:** The final State of PFAS Report and Risk Management Approach were released, including a summary of public comments and government responses.
- **March 8, 2025:** The publication of a proposed order to add PFAS (excluding fluoropolymers) to Part 2 of Schedule 1 to CEPA will begin a 60-day public comment period.

In addition to the report development, several initiatives were launched to gather information to support the risk management of PFAS. In July 2024, a mandatory notice under section 71 of CEPA was issued to gather baseline data on certain PFAS substances in Canadian commerce. This notice, with a reporting deadline of January 29, 2025, was aimed at collecting data on PFAS substances in mixtures, products, or manufactured items for the 2023 calendar year.

Additionally, a consultation document was published in September 2024, proposing the addition of 131 individual PFAS to the National Pollutant Release Inventory (NPRI). Entities that meet the criteria outlined in the notice will be required to report, with a final decision on reporting requirements expected in 2025. Reporting for PFAS releases from the 2025 calendar year is expected in the following year.

The final *State of PFAS Report*, released in March 2025, provides a qualitative evaluation of the fate, sources, presence, and potential impacts of PFAS on the environment and human health. The report defines PFAS according to the OECD's 2021 definition as fluorinated substances containing at least one fully fluorinated methyl or methylene carbon atom. Fluoropolymers, a subset of PFAS, are excluded from this report due to their distinct properties and will be addressed in future evaluations. Since fluoropolymers may have different exposure and hazard profiles compared to other PFAS, their exclusion should not be interpreted as an indication of their safety or risk.

The Government concluded that the broader class of PFAS (excluding fluoropolymers) is likely entering the environment at harmful levels due to its persistence, widespread use, and potential for similar behavior across PFAS types. Combined exposures to multiple PFAS could increase health and environmental risks.

The Government has proposed a phased risk management approach under the Canadian Environmental Protection Act (CEPA) for PFAS (excluding fluoropolymers). A proposed order to add PFAS (excluding fluoropolymers) to Part 2 of Schedule 1 to CEPA has been published for a 60-day public comment period, ending May 7, 2025. This addition would enable enforceable risk management actions.

- **Phase 1** proposes prohibiting PFAS (excluding fluoropolymers) not yet regulated in firefighting foams due to their high potential for environmental and human exposure.
- **Phase 2** involves prohibiting the use of PFAS (excluding fluoropolymers) that are not needed for the protection of health, safety, or the environment, particularly in consumer applications where alternatives are known to exist. Examples include cosmetics, natural health products, non-prescription drugs, food packaging materials, food additives, non-industrial food contact products (such as paper plates, cups, and bowls), paint and coatings, adhesives, sealants, and other building materials available to consumers, cleaning products, waxes, polishes, and textiles (including personal protective equipment like firefighting gear).
- **Phase 3** proposes prohibiting the use of PFAS (excluding fluoropolymers) where feasible alternatives may not currently exist and where further evaluation of the role of PFAS is needed. Examples include fluorinated gas applications, prescription drugs, medical devices, and certain industrial uses.

Exemptions may be considered where necessary, and the consultation process will help shape further risk management actions.

Mexico

Mexico does not yet have comprehensive regulations restricting the manufacture, import, or use of PFAS.

However, in March 2024, the Mexican Government published an amendment to the Agreement on the Import and Export of Pesticides, Fertilizers, and Toxic Substances, known as the *CICOPLAFEST Agreement*.

This amendment introduces a permit requirement for the import and export of certain persistent organic pollutants, including **POSF, PFOS, PFOA** and their derivatives. These measures align with Mexico's obligations under international treaties such as the Stockholm Convention.

The Federal Attorney for Environmental Protection (PROFEPA) is now responsible for issuing verification records for these substances at points of entry and exit, adding an enforcement layer to the import and export process. Effective April 13, 2024, these measures enhance oversight of specific PFAS compounds without imposing broader restrictions on their domestic production, formulation, or use.

4.6. South America

Argentina

Argentina regulates PFAS under *Resolution 451/2019*, which implements the Stockholm Convention on Persistent Organic Pollutants. The resolution prohibits the production, importation, formulation, trade, and use of chemical substances listed in Annex I, including **PFOS**, its salts, **PFOSF**, **PFOA**, its isomers, its salts, and any substance that degrades into PFOA. These restrictions apply whether the substances are in pure form or included in mixtures and formulations.

Furthermore, Article 2, as amended by *Resolution 291/2020*, extends the prohibition to the importation and production of products that intentionally contain these restricted chemicals, as detailed in Annex II. The list of restricted goods includes a broad range of consumer and industrial products, such as textiles (e.g., carpets, coated fabrics), plastics, rubber, adhesives, paints, electronic devices, vehicles, and medical instruments. These measures aim to limit PFAS exposure, prevent environmental contamination, and align Argentina with international standards on hazardous substances.

Additionally, Argentina enforces the Rotterdam Convention through *Resolution 110/2021*, which establishes the Procedure for Import and Export of Chemicals. This regulation ensures that international trade in hazardous substances, including some PFAS-related chemicals, is subject to prior informed consent (PIC) procedures, providing an additional layer of control over their movement and use.

Brazil

Brazil is taking steps toward regulating PFAS with the proposed *Bill PL 2726/2023*, introduced in May 2023, which aims to establish a National PFAS Control Policy.

The bill outlines measures to monitor and regulate PFAS emissions, set concentration limits in water, soil, and food, and control their production, use, and disposal. It also promotes research on remediation technologies and encourages sustainable practices to phase out PFAS.

Under the proposal, companies using PFAS must submit annual reports on their consumption and disposal, implement measures to reduce their use, and work toward progressively eliminating PFAS from products and processes.

Additionally, the Government will conduct public awareness campaigns to educate people on PFAS risks and how to minimize exposure. While the bill has yet to be enacted, it represents a significant step toward PFAS regulation in Brazil.

4.7. Africa

South Africa

South Africa regulates certain PFAS through its *National Environmental Management Act, 1998 (Act No. 107 of 1998)* and its associated regulations.

Notice No. 1150 of 2019, which governs the phase-out of persistent organic pollutants, prohibits the use, production, distribution, sale, import, and export of **PFOS**, its salts, and **PFOSF**.

Notice No. 414 of 2021, which prohibits the production, distribution, import, export, sale, and use of POPs listed under the Stockholm Convention, explicitly includes **PFOA**, its salts, and PFOA-related compounds among the banned listed substances. Under these regulations, a "listed substance" refers to any chemical specifically named in the regulations, including formulations, products containing these chemicals, and related waste materials.

Notice No. 5391 of October 2024, which implements the Rotterdam Convention, imposes a general prohibition on the import and export of **PFOS**, its salts, and **PFOSF** without prior informed consent.

Kenya

Kenya regulates PFAS under the *Environment Management and Coordination (Management of Toxic and Hazardous Chemicals and Materials) Regulations, 2024.* These regulations aim to protect human health and the environment from hazardous chemicals while ensuring compliance with international agreements such as the Stockholm and Rotterdam Conventions.

The regulations prohibit the manufacture, import, export, distribution, storage, or handling of restricted chemicals without a valid license from the relevant authority. PFAS compounds, including **PFOS, PFOSF, PFOA**, and related substances, are classified as restricted chemicals in the Sixth Schedule. While production is generally prohibited, exemptions exist for specific uses, such as POSF in metal plating within closed-loop systems and in fire-fighting foams for liquid fuel fires (Class B fires), as well as for PFOA in certain fire-fighting foams.

Additionally, manufacturers, importers, exporters, and distributors of articles must ensure that hazardous substances listed in the Sixth Schedule are not present. These regulations reflect Kenya's commitment to controlling PFAS to minimize environmental and health risks.

Other countries in the region have incorporated PFAS into their hazardous chemicals regulations. **Rwanda** has banned the use, purchase, sale, import, export, and storage of **PFHxS, PFOA,** and **PFOS** under Order *No. 003/2021*. Similarly, **Cameroon** prohibits the production, importation, and circulation of **PFOS** under *Decree No. 2011/2581*. **Burundi** enforces restrictions through its *Chemical Products Management Code (Law No. 1/06, 2021)*, aligning with the Rotterdam and Stockholm Conventions.

4.8. Eurasia

Georgia

Georgia's regulation of certain PFAS is established through *Resolution No. 263 of 2016*, which outlines the *Rules for Export-import of Certain Dangerous Chemical Substances and Pesticides and the Procedure for Prior Informed Consent*.

This resolution serves to implement the Rotterdam and Stockholm Conventions within the country. As part of these regulations, **PFOS**, its salts, and **PFOSF** are explicitly listed among the chemical substances and pesticides for which production, use, import, and export are prohibited in Georgia.

05. Conclusion

As global awareness of PFAS risks continues to grow, the evolution of international conventions such as the Stockholm and Rotterdam Conventions will be crucial in shaping regulatory frameworks worldwide.

These agreements set important precedents, guiding countries in their efforts to restrict or eliminate harmful PFAS chemicals.

At the same time, regulatory developments in key markets like the United States and the European Union remain highly influential, often setting the pace for global action. With Canada now aligning its approach to target PFAS as a class, it is clear that a more comprehensive and harmonized regulatory landscape is emerging.

Monitoring these evolving regulations will be essential for industries seeking compliance and sustainability in an increasingly stringent global market.

Want to find out how you can stay on top of the changing PFAS compliance landscape? Start a conversation with us today!

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