

Approach for Per- and Polyfluoroalkyl Substances (PFAS) / Total Fluorine Laws

Background

PFAS (Per- and Polyfluoroalkyl Substances) are fluorinated organic chemicals containing at least one fully fluorinated carbon atom (i.e. at least one aliphatic -CF₂- or -CF₃ element). PFAS have been widely used in consumer products because of their specific properties, such as fire resistance and dirt and water repellency.

However, their toxicity and bioaccumulation can cause serious and widespread health risks in both humans and animals. Therefore, many countries and regions have imposed restrictions on PFAS. Many U.S. states have enacted various laws to restrict PFAS or total fluorine in consumer products. ECHA also restricts PFOS, PFOA, etc Under REACH/POPs regulation.

Summary of China Requirements

Country	Products	Requirement	Effective Date
China Ministry of Ecology and Environment Notice No. 10 of 2019	Substances, products	(1) PFOS and its salts: shall not be used; (2) PFOSF: shall not be used	March 26, 2019
China the Inventory of Toxic Chemicals Restricted to Import/Export 2020	Substances	PFOS and its salts and PFOS/F: Apply for Toxic Chemicals Import (Export) Release Permit to handle import & export procedures.	January 1, 2020
China GB/T 18885-2020 Technical specifications of ecological textiles *	Ecological textiles	Perfluorinated compounds (1) Products for infants and young children: < 0.05 mg/kg or < 1.0 µg/m ² (2) Products that directly contact skin: < 0.1 mg/kg or < 1.0 µg/m ² (3) Products that indirectly contact skin: < 0.1 mg/kg or < 1.0 µg/m ² (4) Decorative products: < 0.5 mg/kg or < 1.0 µg/m ²	May 1, 2021

* Apply for all materials with waterproof, anti-stain or anti-oil and coating treatment.

Summary of EU/UK Requirements

High risk material such as fabric, coated materials, leather, paper, wood with waterproof, anti-stain, anti-oil or non-stick properties are suggested to test.

Country /Region	Products	Requirement	Effective Date
EU, UK POPs Regulation (Regulation (EU) 2019/1021)	Substances, mixtures, articles	(1) PFOA and its salts ≤ 0.025 mg/kg (25 ppb); (2) PFOA-related compounds ≤ 1 mg/kg (1000 ppb) (sum)	July 4, 2020
EU, UK POPs Regulation (Regulation (EU) 2019/1021)	Substances, mixtures, articles	PFOS: ≤ 10 mg/kg (for substances, mixtures); < 0.1% (for semi-finished products or articles); < 1 µg/m ² (for textiles or other coated materials)	July 15, 2019
EU, UK-NI REACH Regulation (EC) No 1907/2006 Annex XVII Entry 68	Substances, mixtures, articles	(1) C9-C14 PFCAs and their salts: < 0.025 mg/kg (25 ppb); (2) C9-C14 PFCa-related substances: < 0.26 mg/kg (260 ppb) (sum)	February 25, 2023

Country /Region	Products	Requirement	Effective Date
EU, UK REACH SVHC	Substances, mixtures, articles	(1) Pentacosafluorotridecanoic acid: $\leq 0.1\%$; (2) Tricosfluorododecanoic acid: $\leq 0.1\%$; (3) Henicosfluoroundecanoic acid: $\leq 0.1\%$; (4) Heptacosfluorotetradecanoic acid: $\leq 0.1\%$; (5) APFO: $\leq 0.1\%$; (6) PFOA: $\leq 0.1\%$; (7) PFNA and its sodium and ammonium salts: $\leq 0.1\%$; (8) PFDA and its sodium and ammonium salts: $\leq 0.1\%$; (9) PFHxS and its salts: $\leq 0.1\%$; (10) PFBS and its salts: $\leq 0.1\%$; (11) 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides: $\leq 0.1\%$ (12) PFHpA and its salts: $\leq 0.1\%$	Various, have applied
EU, UK Cosmetics Regulation (EC) No 1223/2009 Annex II	Cosmetic products	(1) PFOS, Potassium perfluorooctanesulfonate, Diethanolamine perfluorooctane sulfonate, Ammonium perfluorooctane sulfonate, Lithium perfluorooctane sulfonate: prohibited; (2) PFOA, Ammonium pentadecafluorooctanoate: prohibited; (3) PFNA, and its sodium salts and ammonium salts: prohibited; (4) PFDA, Ammonium nonadecafluorodecanoate, Sodium nonadecafluorodecanoate: prohibited	Various, have applied
EU/EEA REACH Regulation (EC) No 1907/2006, Annex XVII	Substances, mixtures, articles	(1) Each PFAS (polymeric PFASs excluded): < 0.025 mg/kg (25 ppb); (2) Sum of PFASs (polymeric PFASs excluded): < 0.25 mg/kg (250 ppb); (3) Sum of PFASs (polymeric PFASs included): < 50 mg/kg (50 ppm); (4) Total fluorine (F): 50 mg/kg (50 ppm) (If total fluorine (F) exceeds 50 mg/kg, the manufacturer, importer or downstream user shall upon request provide to the enforcement authorities a proof for the fluorine measured as content of either PFASs or non-PFASs)	In proposal stage

Summary of Recently Passed U.S. State Requirements

Toy :

High risk material such as fabric, coated materials, leather, paper, wood with waterproof, anti-stain, anti-oil or non-stick properties are suggested to test and shall contain 20 ppm or less of total fluorine.

State	Requirement	Effective Date
Colorado (For toy chest with upholstered lid)	Prohibited if intentionally introduced	January 1, 2024
California	1) Prohibited if either intentionally added that has a functional or technical effect, or 2) ≥ 100 ppm as total organic fluorine (Commencing January 1, 2025); ≥ 50 ppm as total organic fluorine (Commencing January 1, 2027)	<ul style="list-style-type: none"> January 1, 2025 (100ppm) January 1, 2027 (50ppm)
Maine	Prohibited if intentionally introduced	January 1, 2030
Washington CHCC	PFOA and related substances, PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	August 21, 2011
Vermont CHCC	PFOA, PFOS and its salts, Perfluorohexane sulfonic acid (PFHxS), Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA): Reporting if over PQL as intentionally added or over 100 ppm as contaminants	<ul style="list-style-type: none"> June 10, 2014 (For PFOA and PFOS and its salts) July 1, 2022 (For PFHxS, PFHpA and PFNA)
Oregon HPCCCH	PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	January 1, 2018
Maine	PFOS or its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	July 28, 2020
Maine	Reporting if intentionally introduced	January 1, 2023

Juvenile products :

High risk material such as fabric, coated materials, leather, paper, wood with waterproof, anti-stain, anti-oil or non-stick properties are suggested to test and shall contain 20 ppm or less of total fluorine.

State	Requirement	Effective Date
California	Prohibited if either intentionally added that has a functional or technical effect, or ≥ 100 ppm as total organic fluorine	July 1, 2023
Colorado	Prohibited if intentionally introduced	January 1, 2024
Maine	Prohibited if intentionally introduced	January 1, 2030
Washington CHCC	PFOA and related substances, PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	August 21, 2011
Vermont CHCC	PFOA, PFOS and its salts, Perfluorohexane sulfonic acid (PFHxS), Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA): Reporting if over PQL as intentionally added or over 100 ppm as contaminants	<ul style="list-style-type: none"> June 10, 2014(For PFOA and PFOS and its salts) July 1, 2022 (For PFHxS, PFHpA and PFNA)
Oregon HPCCCH	PFOS and its salts: : Reporting if over PQL as intentionally added or over 100 ppm as contaminants	January 1, 2018
Maine	PFOS or its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	July 28, 2020
Maine	Peporting if intentionally introduced	January 1, 2023

Food container :

- Paper, paper board, or other materials originally derived from plant fibers shall contain 20 ppm or less of total fluorine.
- Fabric, coated materials, leather with waterproof, anti-stain, anti-oil or non-stick properties shall contain 20 ppm or less of total fluorine.

State	Requirement	Effective Date
California/San Francisc	Prohibited	January 1, 2020
California/Santa Rosa	Prohibited	January 1, 2022
Maine	Prohibited if intentionally introduced	January 1, 2030
Washington CHCC	PFOA and related substances, PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	August 21, 2011
Vermont CHCC	PFOA, PFOS and its salts, Perfluorohexane sulfonic acid (PFHxS), Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA): Reporting if over PQL as intentionally added or over 100 ppm as contaminants	<ul style="list-style-type: none"> June 10, 2014(For PFOA and PFOS and its salts) July 1, 2022 (For PFHxS, PFHpA and PFNA)
Oregon HPCCCH	PFOS and its salts: : Reporting if over PQL as intentionally added or over 100 ppm as contaminants	January 1, 2018
Maine	PFOS or its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	July 28, 2020
Maine	Peporting if intentionally introduced	January 1, 2023
California	Posting information on internet website	January 1, 2023
California	List the presence on product labe	January 1, 2024
Colorado	List the presence on product labe	January 1, 2024

Food Packaging :

- Paper, paper board, or other materials originally derived from plant fibers shall contain 20 ppm or less of total fluorine.
- Fabric, coated materials, leather with waterproof, anti-stain, anti-oil or non-stick properties shall contain 20 ppm or less of total fluorine.

State	Requirement	Effective Date
TPCH	Prohibited	Be up to TPCH Member States to adopt changes to their existing laws or adopt a new law to address toxics in packaging.
Maine	Prohibited if intentionally introduced	January 1, 2022 if safer alternatives are available, otherwise two years from date on which DEP determines a safer alternative is available, whichever is later
New York	Prohibited if intentionally introduced	December 31, 2022
California	Prohibited if either intentionally added that has a functional or technical effect, or ≥ 100 ppm as total organic fluorine	January 1, 2023
Washington	Prohibited if intentionally introduced	<ul style="list-style-type: none"> February 2023 (Wraps and liners, Plates, Food boats, Pizza boxes) May 2024 (bags and sleeves, bowls, flat service ware, open-top containers and closed containers)
Vermont	Prohibited if intentionally introduced	July 1, 2023
Connecticut	Prohibited if intentionally introduced	December 31, 2023
Colorado	Prohibited if intentionally introduced	January 1, 2024
Maryland	Prohibited if intentionally introduced	January 1, 2024
Minnesota	Prohibited if intentionally introduced	January 1, 2024
Rhode Island	Prohibited if intentionally introduced	January 1, 2024
Hawaii	Prohibited if intentionally introduced	December 31, 2024

Furniture :

High risk material such as fabric, coated materials, leather, paper, wood with waterproof, anti-stain, anti-oil or non-stick properties are suggested to test and shall contain 20 ppm or less of total fluorine.

State	Requirement	Effective Date
Colorado	Prohibited if intentionally introduced	<ul style="list-style-type: none"> January 1, 2025 (For Indoor textile furnishings and Indoor upholstered furniture) January 1, 2027 (For outdoor textile furnishings; Outdoor upholstered furniture)
California	1) Prohibited if either intentionally added that has a functional or technical effect, or 2) ≥ 100 ppm as total organic fluorine (Commencing January 1, 2025); ≥ 50 ppm as total organic fluorine (Commencing January 1, 2027)	<ul style="list-style-type: none"> January 1, 2025 (100ppm) January 1, 2027 (50ppm)
Maine	Prohibited if intentionally introduced	January 1, 2030
Washington CHCC	PFOA and related substances, PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	August 21, 2011
Vermont CHCC	PFOA, PFOS and its salts, Perfluorohexane sulfonic acid (PFHxS), Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA): Reporting if over PQL as intentionally added or over 100 ppm as contaminants	<ul style="list-style-type: none"> June 10, 2014 (For PFOA and PFOS and its salts) July 1, 2022 (For PFHxS, PFHpA and PFNA)
Oregon HPCCCH	PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	January 1, 2018
Maine	PFOS or its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	July 28, 2020
Maine	Reporting if intentionally introduced	January 1, 2023

Apparel :

High risk material such as fabric, coated materials, leather with waterproof, anti-stain, anti-oil or non-stick properties are suggested to test and shall contain 20 ppm or less of total fluorine.

State	Requirement	Effective Date
California	1) Prohibited if either intentionally added that has a functional or technical effect, or 2) ≥ 100 ppm as total organic fluorine(Commencing January 1, 2025); ≥ 50 ppm as total organic fluorine(Commencing January 1, 2027)	<ul style="list-style-type: none"> January 1, 2025 (100ppm) January 1, 2027 (50ppm)
Maine	Prohibited if intentionally introduced	January 1, 2030
Washington CHCC	PFOA and related substances, PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	August 21, 2011
Vermont CHCC	PFOA, PFOS and its salts, Perfluorohexane sulfonic acid (PFHxS), Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA): Reporting if over PQL as intentionally added or over 100 ppm as contaminants	<ul style="list-style-type: none"> June 10, 2014(For PFOA and PFOS and its salts) July 1, 2022 (For PFHxS, PFHpA and PFNA)
Oregon HPCCC	PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	January 1, 2018
Maine	PFOS or its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	July 28, 2020
Maine	Reporting if intentionally introduced	January 1, 2023

Carpets and Rugs :

High risk material such as fabric, coated materials,leather with waterproof, anti-stain, anti-oil or non-stick properties are suggested to test and shall contain 20 ppm or less of total fluorine.

State	Requirement	Effective Date
California Safer Consumer Products: Priority Products	Manufacturers submit notification	July 1, 2021
Maine	Prohibited if intentionally introduced	January 1, 2023
Vermont	Prohibited if intentionally introduced	July 1, 2023
Colorado	Prohibited if intentionally introduced	January 1, 2024
Maryland	Prohibited if intentionally introduced	January 1, 2024
Maine	Reporting if intentionally introduced	January 1, 2023

Consumer Products with Textile component :

High risk material such as fabric, leather with waterproof, anti-stain, anti-oil or non-stick properties are suggested to test and shall contain 20 ppm or less of total fluorine.

State	Requirement	Effective Date
California	1) Prohibited if either intentionally added that has a functional or technical effect, or 2) ≥ 100 ppm as total organic fluorine(Commencing January 1, 2025); ≥ 50 ppm as total organic fluorine(Commencing January 1, 2027)	<ul style="list-style-type: none"> January 1, 2025 (100ppm) January 1, 2027 (50ppm)
Maine	Prohibited if intentionally introduced	January 1, 2030
Maine	Reporting if intentionally introduced	January 1, 2023

Miscellaneous Products :

High risk material such as fabric, coated materials, leather, paper, wood with waterproof, anti-stain, anti-oil or non-stick properties are suggested to test and shall contain 20 ppm or less of total fluorine.

State	Products	Requirement	Effective Date
TPCH	Package or packaging components	Prohibited	Be up to TPCH Member States to adopt changes to their existing laws or adopt a new law to address toxics in packaging.
California Safer Consumer Products: Priority Products	Treatments Containing PFASs for Use on Converted Textiles or Leathers	Manufacturers submit notification	April 1, 2022
Maine	Fabric treatment	Prohibited if intentionally introduced	January 1, 2023
Vermont	<ul style="list-style-type: none"> Aftermarket stain and water resistant treatments for rugs or carpets Ski wax 	Prohibited if intentionally added	July 1, 2023
Colorado	<ul style="list-style-type: none"> Fabric treatments Oil and gas products 	Prohibited if intentionally introduced	January 1, 2024
California	Textile articles	1) Prohibited if either intentionally added that has a functional or technical effect, or 2) ≥ 100 ppm as total organic fluorine(Commencing January 1, 2025); ≥ 50 ppm as total organic fluorine(Commencing January 1, 2027)	<ul style="list-style-type: none"> January 1, 2025 (100ppm) January 1, 2027 (50ppm)
California	Cosmetic product	Prohibited if intentionally added	January 1, 2025
Colorado	Cosmetic	Prohibited if intentionally introduced	January 1, 2025
Maryland	Cosmetic product	Prohibited 13 PFASs and its salts if intentionally added	January 1, 2025
Maine	Any consumer product	Prohibited if intentionally introduced	January 1, 2030
Washington CHCC	Certain children products	PFOA and related substances, PFOS and its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	August 21, 2011
Vermont CHCC	Certain children products	PFOA, PFOS and its salts, Perfluorohexane sulfonic acid (PFHxS), Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA): Reporting if over PQL as intentionally added or over 100 ppm as contaminants	<ul style="list-style-type: none"> June 10, 2014(For PFOA and PFOS and its salts) July 1, 2022 (For PFHxS, PFHpA and PFNA)
Oregon HPCCH	Certain children products	PFOS and its salts: : Reporting if over PQL as intentionally added or over 100 ppm as contaminants	January 1, 2018
Maine	<ul style="list-style-type: none"> Child care article Clothing Footwear Sleepwear Toy Cookware, tableware, reusable food and beverage containers 	PFOS or its salts: Reporting if over PQL as intentionally added or over 100 ppm as contaminants	July 28, 2020

Remark: The information in this document is for reference only. For detail shall reference to the original regulations.