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International Symposium on New Refrigerants and Environmental Technology 2025

PFAS regulatory update

October 23, 2025

Chemours-Mitsui Fluoroproducts Co., Ltd.

Junichi Ishikawa

Today's Agenda

1. About PFAS

- PFAS contribution to the society

- Specific PFAS

- Regulatory trend by region

- Japan case

2. EU U-PFAS restriction update

- 1) Overview of Background Document

- 2) F-gas related comparison

- 3) Prepare for 2nd consultation

3. US PFAS related regulatory update

- 1) Federal Gov't status

- 2) States gov't status

4. Summary

About PFAS

PFAS contribution to the society

Specific PFAS

Regulatory trend by Region

Japan case

PFAS contribution to the society

<https://cfcpj.jp/poweroffluoride.html>

CASE 04 : Automotive

自動車

フッ素

自動車の性能と安全性を支える

フッ素のもつ特性（撥水・撥油性・耐熱性・耐薬品性など）が活かされ、自動車にもたくさん使われています。自動車のエンジンから窓や内装まで幅広く使われており、自動車の性能や安全性を支えています。



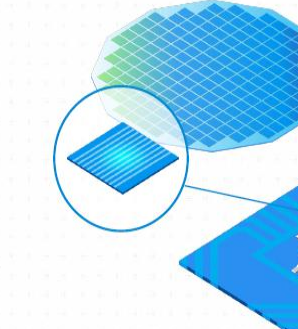
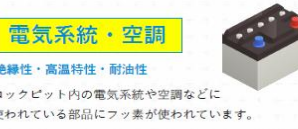
CASE 01 : Semiconductor chip

半導体チップ

フッ素

半導体の製造に欠かせない材料

スマホ・パソコン・人工衛星やAIの中には「半導体チップ」が入っています。フッ素は、半導体チップを小さくして高性能に、安全に製造することに貢献しています。



なぜフッ素は現代社会を支える素材なのか？

フッ素は、熱や薬品に強い・電気を通さない・水や汚れを弾くなど、他の元素にはないユニークな性質を持ちます。その特長が、さまざまな用途で活用されています。

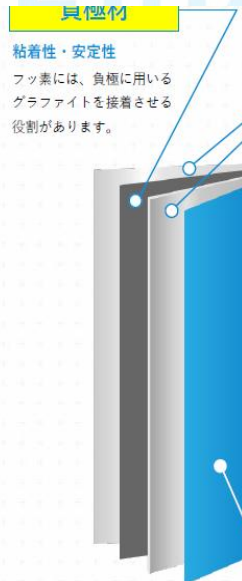
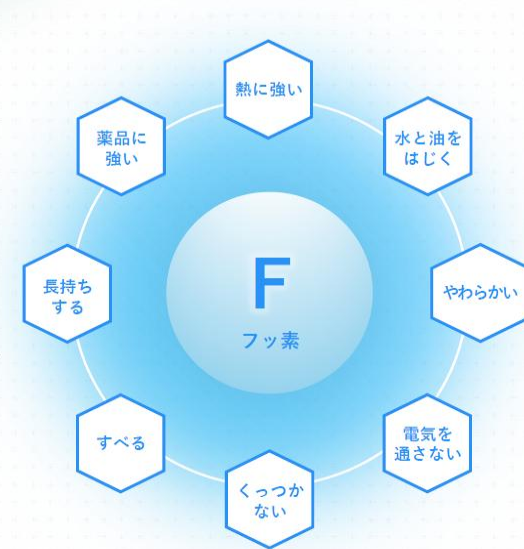


リチウムイオン電池

フッ素

安全性や軽量化、長寿命化に貢献

リチウムイオン電池の特徴である小型・軽量・高容量を実現しているのは、実はフッ素が大きく関わっています。フッ素の持つ安定性や高濃度化、耐熱性、粘着性のおかげでスマートフォンやデジカメ、ノートパソコンなどのモバイル機器がよりコンパクトになり、電気自動車や再生可能エネルギーの蓄電など安全に使用することができます。



FCJ 日本フッ素化学工業協会
Conference of Fluoro-Chemical Product Japan

CASE 05 : Air conditioner

空調機器・冷凍冷蔵

フッ素

快適な生活はフッ素に支えられています

フッ素は、エアコンなどの空調機器において、効率・耐久性・安全性を支える重要な役割を担っています。夏の暑い日や冬の寒い日でも快適に過ごせる暮らしを支え、食品の低温保存にもフッ素が貢献しています。



水素をつくる

安定性・高効率
水素は「水を電気で分解する」ことで作ることができます。このとき、「電解質膜」という部品が、「プロトン（水素イオン）」の通り道を作り、水を水素と酸素に分けています。この電解質膜に電気を通しやすい性質をもつフッ素が使われています。

水素を作るのもフッ素

献しています。水素を発生されています。ぶ・貯める、使うために

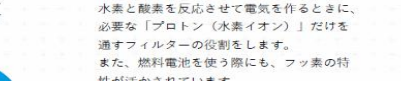
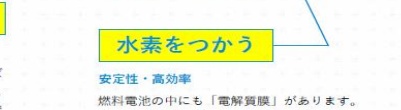
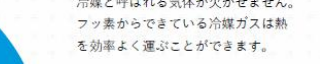
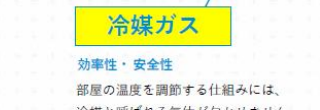
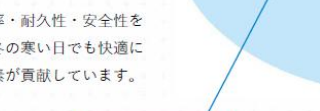
水素を運ぶ・貯める

耐熱性・安定性・耐油性
つくった水素はトラックや船などで運ばれた後、貯蔵所で貯められます。ここでも部材を長持ちさせるため、水素を安全に使用するためにフッ素が使用されています。

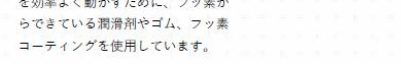
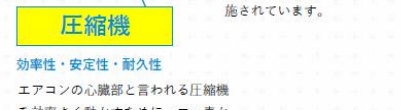
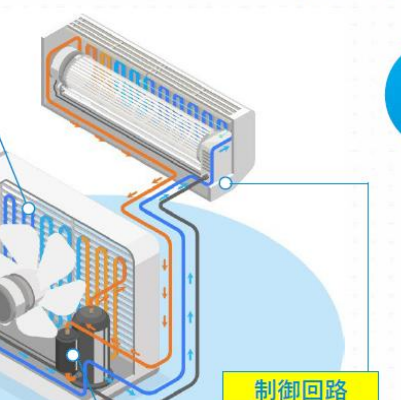
また、燃料電池を使う際にも、フッ素の特性が活かされています。

熱交換器

非粘着性・熱的安定性・耐久性
エアコン内部の熱交換器の表面にフッ素コーティングを施すことで汚れを防ぎます。



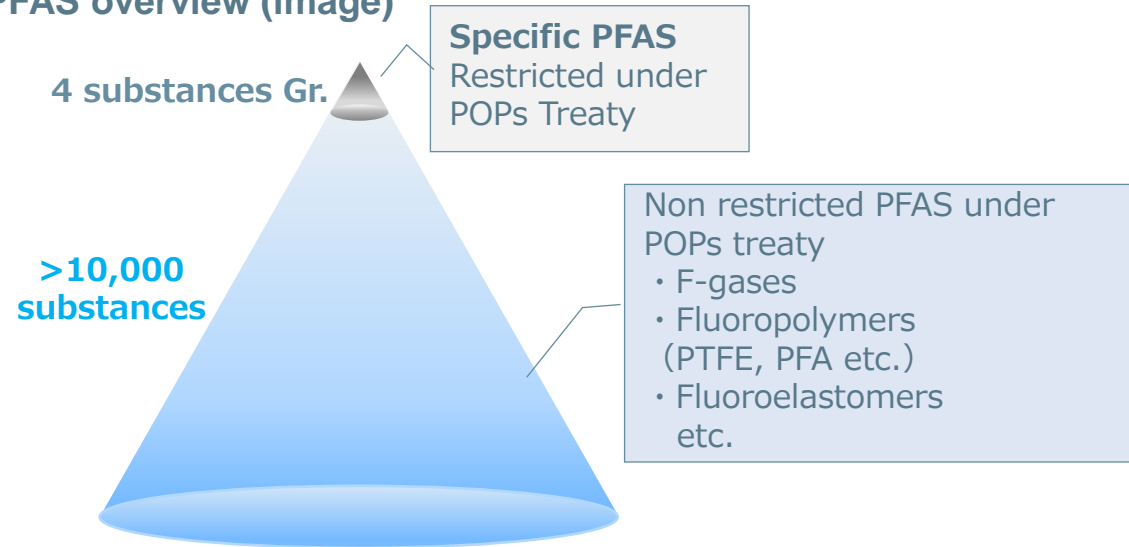
身の回りにはフッ素が知らず知らずのうちに使われています。空調機器・冷凍冷蔵



SPECIFIC PFAS

【What's SPECIFIC PFAS】

PFAS overview (image)



FCJ advocates to call certain substances restricted under UN POPs Treaty as “SPECIFIC PFAS” to distinguish to the other PFAS.では、As of Sep., 2025, the following 4 substance group are categorized as SPECIFIC PFAS.

- ① PFOS (Perfluoro Octanoic Sulfonate Acid and its related substances)
- ② PFOA (Perfluoro Octanoic Acid and its related Substances)
- ③ PFHxS (Perfluoro Hexanoc Sulfonate Acid and its related substances)
- ④ C9-C21 LC-PFCA
(Long-chain Perfluoro Carbonic Acid and its related substances)

【Why we need to call the as SPECIFIC PFAS】

PFAS are important substances group supporting to our modern life. PFAS includes more than 10,000 substances and so called. Among PFAS, restricted under POPs Treaty are SPECIFIC PFAS only. However, recent years concerns around SPECIFIC PFAS like PFOA and PFOS, Other PFAS seem to be regarded as concerned substances. FCJ deeply worry about spreading mislead image of non restricted PFAS. That's why we advocate restricted substances under POPs Treaty as SPECIFIC PFAS to distinguish to the other PFAS.

Regulatory trend by region

► EU position





PFAS is persistent in the environment which result concerns to human health and environment unless reducing emission. Even though there are few scientific evidence to its harm, PFAS should be strictly restricted on manufacturing and usage based on Precautionary Principle.

► US position

- Federal : Thru environment study, emission monitoring and clarifying each substance’s hazard level, conducting risk assessment and will set appropriate restriction for individual PFAS substances.
- States : Even though different by states, mostly restrict specific application especially consumer use, however, some states consider wider PFAS restriction.

► Japan, and other regions

Following decision at Stockholm Convention (POPs Treaty) and update domestic regulation accordingly.

	EU 	US Federal 	US States	JP 	ROW 
Restriction options	Full ban on mfg and usage based on Precautionary Principle	Multifaced restriction based on risk assessment	Different by states, tend to restrict specific applications like consumer use	Decision at POPs treaty follow by domestic regulation accordingly	
Restriction Trend	REACH : Under evaluation of comments by RAC/SEAC	TSCA : Wait for PFAS reporting requirement	Minnesota introduced full ban from 2032 with CUU exemption	No full ban type of regulations	

Reference REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
TSCA : Toxic Substances Control Act

日本での規制動向 環境省 PFAS総合戦略検討専門家会議のアプローチ

<https://www.env.go.jp/content/000150420.pdf>



PFASに関する今後の対応の方向性（概要）

- PFASに対する総合戦略検討専門家会議において、国内外の最新の科学的知見及び国内での検出状況の収集・評価を行い、これらを踏まえた科学的根拠に基づくPFASに関する今後の対応の方向性をとりまとめた。

PFOS、PFOAへの対応について

PFOS、PFOAへの更なる対応の強化のため、以下 4 点の継続・充実を図ることが必要

（１）管理の強化等

- ・ 正確な市中央在庫量の把握等の管理強化
- ・ 泡消火薬剤の更なる代替促進
- ・ 環境中への流出防止の徹底
- ・ 水質の暫定目標値の取扱いの検討

（２）暫定目標値等を超えて検出されている地域等における対応

- ・ 「対応の手引き」の充実による飲用ばく露の防止の徹底
- ・ 自治体による健康状態の把握

（３）リスクコミュニケーション

- ・ 今回作成するQ&A集を活用した丁寧なリスクコミュニケーションの実施

（４）存在状況に関する調査の強化等

- ・ 環境モニタリングの強化
- ・ 化学物質の人へのばく露モニタリング調査の本調査の実施に向けた検討

PFOS、PFOA以外のPFASへの対応について

さらに、その他のPFASについては、以下の物質群に大きく分類して対応

＜物質群 1：POPs条約で廃絶対象となっている物質等＞

- （１）POPs条約の廃絶対象となっている物質（PFHxS）及び検討中の物質（長鎖PFCA（PFNAなど））の優先的な取組の検討
- （２）存在状況に関する調査の強化等
→ 環境モニタリングの強化や化学物質の人へのばく露モニタリング調査の対象物質への追加を検討

＜物質群 2：それ以外の物質＞

- （１）当面对応すべき候補物質の整理
- （２）存在状況に関する調査の強化等（水環境中の調査、化学物質の人へのばく露モニタリング調査対象物質の検討）
- （３）（２）を踏まえた対応（適正な管理の在り方の検討、物質群としての評価手法の検討）

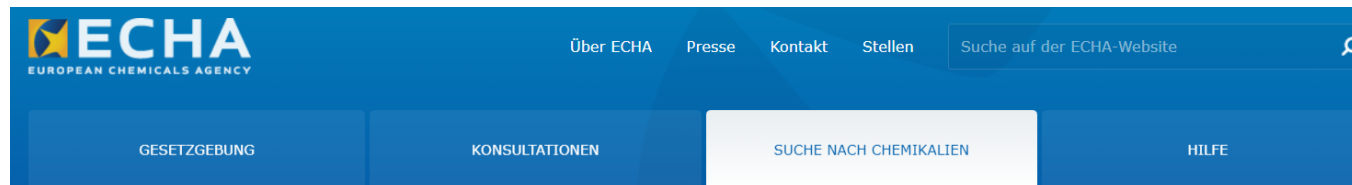
PFASに関する更なる科学的知見等の充実について

- 国内外の健康影響に関する科学的知見及び対策技術等は、常に更新されており、継続的な収集が必要。
- 既存の知見の収集のみならず、国内において関連する研究を推進すべき。

2. EU PFAS restriction update

- Background Document overview
- F-gas related comparison
- Suggestion for 2nd consultation

Remark : Contents are summarized for your better understanding PFAS restriction review process. Please refer to ECHA website for more detailed information.



[ECHA](#) > [SUCHE NACH CHEMIKALIEN](#) > [Registry of restriction intentions until outcome](#)

Registry of restriction intentions until outcome

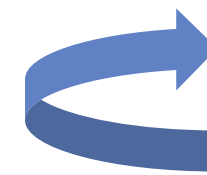
EU PFAS Restriction Dossier overview : Reason for PFAS restriction

Scope of REACH Article 68 restrictions
Unacceptable risk to human health or the environment, which needs to be Addressed on a community-wide basis

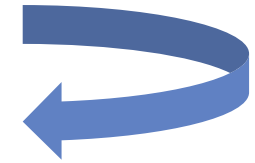


Reasons for restricting PFAS in EU

- “PFASs and their degradation products may persist in the environment longer than any other man-made chemical. ”
- In addition, there are concerns over bioaccumulations potential, mobility, long-range transport potential, toxicological effects, etc. = Precautionary Principle



Persistence
Excellent
durability

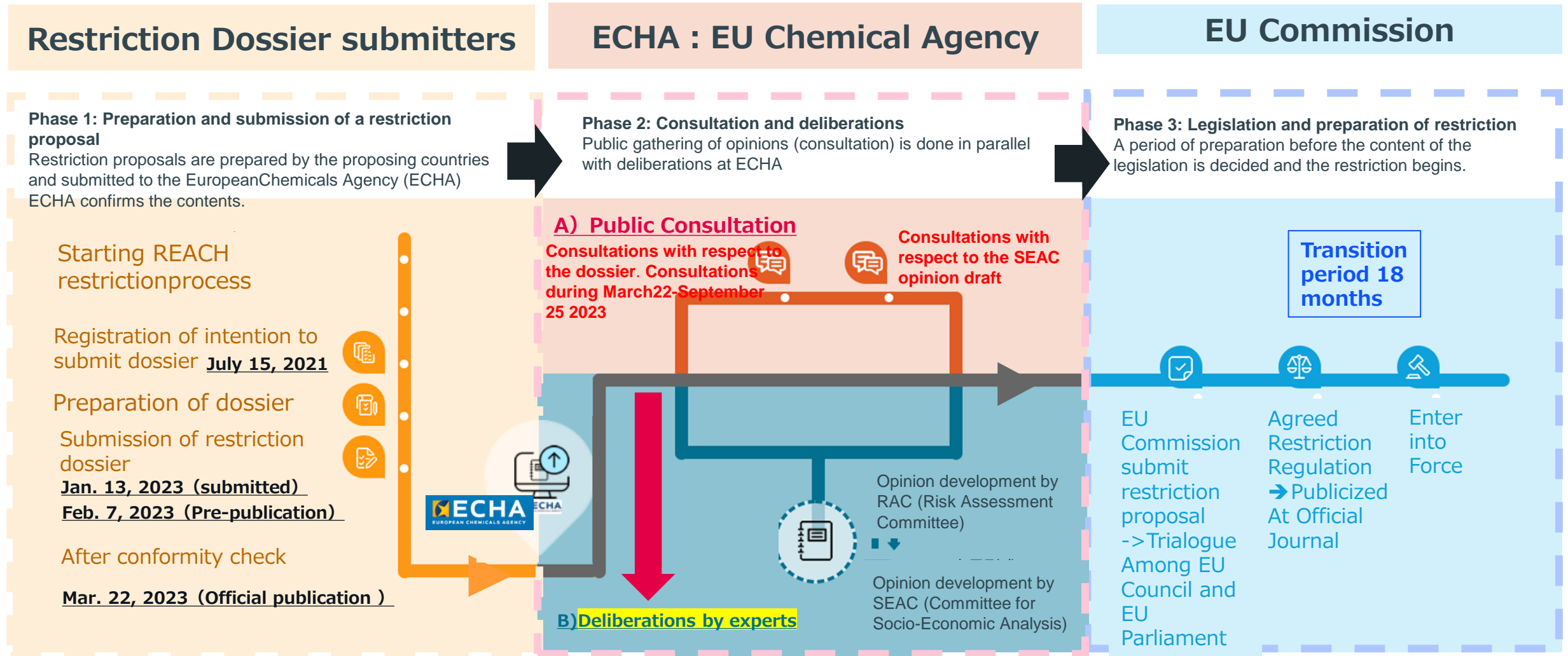


All fluorinated compounds in scope are covered

Grouping

A few of all fluorinated compounds targeted

EU REACH restriction process



Comments evaluation status by RAC/SEAC

※ Evaluation will be completed by end of 2025R (2025/08/27 ECHA)

	2024				2025			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
TULAC (Textile etc.)								
Food contact materials & packaging								
Metal plating and metal products								
Consumer mixtures								
Cosmetics								
Ski wax								
Fluorinated gases								
Medical devices								
Transport								
Electronics & Semiconductor								
Energy								
Construction								
Lubricants								
Petroleum and mining								
PFAS manufacturing								
Horizontal issues								

Progress announcement by ECHA and 5 dossier submitters (24/11/20)

Helsinki, 20 November 2024 – The five authorities (Dossier Submitters) and ECHA's scientific committees for Risk Assessment (RAC) and for Socio-Economic Analysis (SEAC) continue to consider more than 5 600 scientific and technical comments received from third parties during the consultation in 2023.

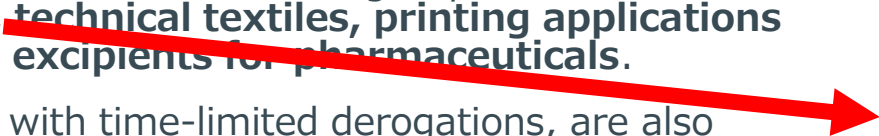
This consultation input helps the Dossier Submitters to progressively update and improve the information on PFAS. It has also helped **identify uses** that were not specifically named in the initial proposal, and these are being incorporated into existing sector assessments or grouped into new sectors as needed. Examples include **sealing applications, technical textiles, printing applications and other medical applications, such as packaging and excipients for pharmaceuticals.**

Alternative **restriction options**, besides a full ban or a ban with time-limited derogations, are also being considered. An alternative option could, for example, involve conditions allowing the continued manufacture, placing on the market or use of PFAS instead of a ban. This consideration is particularly relevant for uses and sectors where evidence suggests that a ban could lead to disproportionate socio-economic impacts. These alternative options are being considered for uses including, but not limited to:

- batteries;
- fuel cells; and
- electrolysers.

The proportionality of each alternative option will be evaluated and compared to the initial two restriction options of a full ban or a ban with time-limited derogations. All this updated information is feeding into ECHA committees' ongoing evaluation of the proposal.

Fluoropolymers are one example of a group of PFAS with high interest for stakeholders and the consultation has brought further insight into the availability of alternatives for certain uses of these polymers, technical and organisational measures to minimise their emissions in the environment and potential socio-economic impacts of a ban of their manufacture, placing on the market and use. Specific attention is being given to this group by all actors in the opinion development process.



Impact to manufacturing Process on safety and Quality etc. at many Industries sectors.

Chemical Industry Action Plan by EU Commission (25/7/8)

- EU Commission Announced European Chemical Industry Action Plan to support Chemical industry on July 8, 2025.



- Key messages are; enhance resilience, 内容は、secure energy supply, support decarbonization, leadership in the market and innovation, simplify and improve efficiency on regulatory framework, and clarity on PFAS.

Strasbourg, 8.7.2025
COM(2025) 530 final

■ Clarity on PFAS issues

- Complete u-PFAS evaluation by ECHA by end of 2026.
- EC consider PFAS ban on consumer use like cosmetics, food contact materials.
- 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, defence, 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.
- A new EU-wide PFAS monitoring framework will be developed https://single-market-economy.ec.europa.eu/publications/european-chemicals-industry-action-plan_en

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS

A European Chemicals Industry Action Plan

Background Document by dossier submitters (25/8/20)

ECHA announced on Aug. 20 that dossier submitter 5 countries submitted Background Document (revised dossier)

→ BD will be basis of SEAC opinion draft to be called for 2nd consultation from March, 2026 with 2 months time window.

Key points in BD

8 new sectors have been added and evaluated.

- Printing
- Sealing
- Machinery
- Other medical applications
- Military
- Explosives
- Technical textiles
- Broader industrial uses, such as solvents and catalysts

Submitters also considered other restriction option (RO3) involving conditions allowing continued manufacturing and placing on the market on the following sectors;

- ❑ PFAS manufacturing
- ❑ transport
- ❑ Electronics and semiconductors
- ❑ Energy
- ❑ Sealing
- ❑ Machinery
- ❑ Technical textiles

PFAS Restriction Dossier : Original vs. Background Document–P4

2023 Ver.2 (2023/3 published)	2025 Ver.14 (2025/8 published)
By way of derogation, paragraphs 1 and 2 shall not apply to a. active substances in biocidal products within the scope of Regulation (EU) 528/2012 b. active substances in plant protection products within the scope of Regulation (EC) 1107/2009 c. active substances in human and veterinary medicinal products within the scope of Regulation (EC) No 726/2004, Regulation (EU) 2019/6 and Directive 2001/83/EC	By way of derogation, paragraphs 1 and 2 shall not apply to a. Active substances in biocidal products within the scope of Regulation (EU) 528/2012 b. active substances in plant protection products within the scope of Regulation (EC) 1107/2009 c. active substances in human and veterinary medicinal products within the scope of Regulation (EC) No 726/2004, Regulation (EU) 2019/6 and Directive 2001/83/EC
	Hereinafter d. newly added
Exempt used items	d. placing on the market of articles which were already in end-use in the Union
Exempt spare parts	e. spare parts intended to replace PFAS-containing articles in articles or complex objects until 20 years after the last date when the complex article was allowed to be placed on the market for the first time or until the end of service life for the specific object, when it is shorter than 20 years f. spare parts used in articles or complex objects for which legal obligations related to the use of specific spare parts exist until the end of service life of the complex object
Exempt raw materials, intermediates, and PFAS mfg for mfg derogated items	g. starting materials and intermediates in the manufacture of PFASs for a use listed under paragraphs 4, 5 or 6 h. production of PFAS containing mixtures or articles in the upstream supply chain for a use listed under paragraphs 4, 5 or 6

PFAS Restriction Dossier : Original vs. Background Document–P4

2023 Ver.2 (2023/3 published)	2025 Ver.14 (2025/8 published)
<div>Exempt R&D</div> <div>Exempt recycled items</div> <div>Allow PFAS mfg subject to emission threshold</div>	<div>i. uses under product and process orientated research and development (PPORD; art. 67(1) of EU-REACH)</div> <div>j. paper and board articles containing recovered material, with the exception of food-contact material and packaging</div> <div>k. textile articles containing recovered material, with the exception of toys as defined in Directive 2009/48/EC, until 13.5 years after EiF</div> <div>l. plastic articles containing recovered material, with the exception of food-contact material and food-contact packaging and toys as defined in Directive 2009/48/EC, until 23.5 years after EiF</div> <div>m. production of PFAS with or without the use of fluorinated polymerisation aids in the production of polymeric PFAS under controlled conditions with average emission factors (= Annual emission of PFAS / total annual amount of PFAS manufactured on site) not exceeding</div> <div>i. 0.0090% to air, 0.0010% to water and 0% to soil for emissions of non-polymeric PFAS residues from polymerization aid technology in fluoropolymer manufacturing until end of 2030;</div> <div>ii. 0.0030% to air, 0.0006% to water and 0% to soil for emissions of non-polymeric PFAS residues from polymerization aid technology in fluoropolymer manufacturing from end of 2030 onwards;</div> <div>iii. 0.01% to all compartments for all PFAS emissions not mentioned above from sites manufacturing polymeric and non-polymeric PFAS 6.5 years after EiF.</div>

Continuous use with conditions (RO3)

Reference : Annex E [d60206de-ffd1-3b51-3f22-23908cb390ee](#)

- Evaluate Risk Option on 23 sectors including newly identified 8 sectors (Annex E)

#	Sector (E.2.x)	Condition to apply RO3	RO3 assessment	remarks
1	PFAS manufacturing (E.2.1)	MFG site drain/gas emission BAT、 High temp incineration、periodical AoA	RO3 proportionate	製造継続 + 排出最小化が妥当
2	TULAC (E.2.2)	MFG BAT、EPR、inventory/ Recovery improvemnt	RO2 (RO3 not enough)	コスト・影響を広く試算、分析
3	Food contact materials & packaging (E.2.3)	MFG BAT、EoLmgnt	RO2 (RO3assessed)	代替評価・費用影響を多数掲載
4	Metal plating & products (E.2.4)	Process BAT、Gas/drain mgnt、EoLmgnt	RO2 (time limited derogation)	代替実現性評価あり
5	Consumer mixtures & misc. consumer articles (E.2.5)	Impossible EoL mgnt	RO2/RO1	消費者用途
6	Cosmetics (E.2.6)	-	RO1	-
7	Ski wax (E.2.7)	-	RO1	-
8	Applications of fluorinated gases (E.2.8)	Emission control、inspection、inventory	RO2	既存の欧州Fガス規制との整合性
9	Medical devices (E.2.9)	MFG BAT、EoL、safety first	RO2 mostly	-
10	Transport (E.2.10)	RO3a:periodical check、RO3b:leak check	RO3=64%、RO2=61%	リーク率設定 (0.5→0.1→0.05%)
11	Electronics & semiconductors (E.2.11)	Liquid PFAS recovery・EoL、emission、AoA	RO3 proportionate	製造工程はRO3妥当、全体はRO2
12	Energy (E.2.12)	Recovery・EoL/recycle、reporting	RO3 likely proportionate	電池・燃料電池・電解槽
13	Construction products (E.2.13)	MFG BAT、EoLmgnt、EPR	RO2 mostly	コスト試算・代替可能性の整理
14	Lubricants (E.2.14)	Emission/vapor mgnt、recovery、alteratin	RO2 mostly	-
15	Petroleum & mining (E.2.15)	Sealing・recovery・incineration	RO2 mostly	-
16	Printing applications (E.2.16)	MFG BAT、recovery/incineration、inventory	RO2 mostly	-
17	Sealing applications (E.2.17)	MFG BAT、EPR、95%reuse + incineration	RO3=10%、not enough	使用中の摩耗が未対策
18	Machinery applications (E.2.18)	BAT、EPR、AoA、Inventory/TOF monitoring	RO3=42% not enough	摩耗由来の排出が残る
19	Other medical applications (E.2.19)	MFG BAT、EoL mgnt、Quality/Safety	RO2 mostly	-
20	Military applications (E.2.20)	Time limited derogation + Control plan	RO2 mostly	軍事用途として特別な管理条件
21	Explosives (E.2.21)	MFG BAT、EoL mgnt	RO2 mostly	-
22	Technical textiles (E.2.22)	MFG BAT・EPR、Industrial use only	RO3=76% proportionate	RO2=84%、RO1=97%
23	Broader industrial uses (E.2.23)	BAT/EoL/EPR	RO2	溶媒・触媒用途が含まれる

AoA (Analysis of Alternatives) : 代替案分析

BAT (Best Available Techniques) : 最良利用可能技術

EoL (End of Life) : 廃棄段階

EPR (Extended Producer Responsibility) : 拡大生産者責任

TOF (Transformation of Fluorinated substances) : PFAS変換生成物

RO1:Ban after EiF 即時禁止

RO2:Ban after derogation 猶予期間後に禁止

RO3:allow use with condition 条件付き使用継続

Proportionate: 妥当

Likely proportionate: 妥当と思われる

F-gas related derogation Original vs. BD Paragraph 5

	PFAS restriction original dossier	Derogation	Background Document	Derogation	F-gas regulation	Timeline
Refrigerants	f. refrigerants in low temperature refrigeration below -50°C	5	e. refrigerants in low temperature refrigeration below -50 °C	5	GWP <150	2030
	g. refrigerants in laboratory test and measurement equipment	12	f. refrigerants in laboratory test and measurement equipment	12		
	h. refrigerants in refrigerated centrifuges	12	g. refrigerants in refrigerated centrifuges	12		
	i. maintenance and refilling of existing HVACR equipment put on the market before [18 months after EiF] and for which no drop-in alternative exist	12	n. refrigerants, clean fire-suppressing agents and insulation gases for maintenance and refilling of existing HVACR, fire-suppressing and switchgear equipment put on the market before 18 months (or placed on the market after 18 months after EiF based on an applicable derogation)	No time limit	HFC Ban with safety clause in 2030 Chillers <12kw Monoblock Heatpump <12kw Heatpump/Split <12kw No HFC Ban Capacity>12kw	2032 2032 2035
	j. refrigerants in HVACR-equipment in buildings where national safety standards and building codes prohibit the use of alternatives	No time limit	h. refrigerants in HVACR-equipment in buildings where national safety standards and building codes prohibit the use of alternatives	No time limit		
	p. refrigerants in mobile air conditioning-systems in combustion engine vehicles with mechanical compressors	5	q. refrigerants in mobile air conditioning-systems and heat pump systems in i) light duty electrical vehicles; ii) all other vehicles	i) 5 ii) 12		
	q. refrigerants in transport refrigeration other than in marine applications	5	r. refrigerants in transport refrigeration other than in marine applications	5	No HFC Ban GWP>150	
Solvents	k. industrial precision cleaning fluids	12	vv. solvents used in industrial uses	12		
	l. cleaning fluids for use in oxygen-enriched environments	12				
	bb. [cleaning and heat transfer: engineered fluids for medical devices	12				
	aa. [preservation of cultural paper-based materials	12	l. preservation of cultural paper-based materials	12		
			v. heat transfer fluids for 2-phase immersion cooling	12		
Fire suppression	m. clean fire suppressing agents where current alternatives damage the assets to be protected or pose a risk to human health	12	k. fluorinated gases used as clean fire suppressing agents where current alternatives damage the assets to be protected or pose a risk to human health	12	Fire fighting equipment	2025
Blowing Agent	w. [foam blowing agents in expanded foam sprayed on site for building insulation	5	i. foam blowing agents in thermal insulation foam	12	Ban for foam by HFC including HFO	2033
Propellents	z. [propellants for technical aerosols for applications where non-flammability and high technical performance of spray quality are required	12	j. propellants for technical aerosols for applications where non-flammability and high technical performance of spray quality are required until 13.5 years after EiF. The derogation does not apply to products intended for entertainment and decorative purposes for the general public	12	Ban for aerosol with HFC including HFO	2030
			kk. propellants in pMDIs	5		
Overall	dd. [use as refrigerants and for mobile air conditioning in vehicles in military applications	12	ll. Military applications	12	Exempted	

Concerns on BD and respond to 2nd consultation

F-gas related paragraph in BD

Paragraph 4. Exemption

- Allow F-gas mfg subject to emission threshold by 0.01% after 6.5 yrs EiF
- Refrigerant blends have to follow paragraph 5 derogation

Paragraph 5. Derogation

- Refer to previous page

Issues

- 1) Even comply with GWP target and timeline under F-gas regulation, placing on the market is prohibited after 1.5 yrs transition time after EiF under PFAS regulation (BD)
- 2) Earlier HFC ban for Fire Suppression (2025) and Propellents (2035) required under F-gas regulation, but BD provide 12 yrs derogation for these applications.
- 3) Applications with Derogation yrs 12 yrs under BD, HFCs ban come earlier than F-gas regulation (2050).

Prepare for 2nd Consultation

- Provide market practice data on recovery, reclaim and reuse on f-gas, with minimizing emission.
- Emphasize less energy consumption by LCA assessment contributing minimum CO2 emission than Industrial gases.

EU PFAS restriction BD : 2nd Consultation

1. Encourage to submit comments (from March 2026)

Reason① : to avoid business contingency risk

No comment = Regard as accepting opinion.

Application specific impact/No Alternative/No time limit derogation to secure further negotiation.

Reason② : to provide evidence

Emission reduction is base line for continuous use, so provide recycling efforts (f-gas does) by data.

Point to mention that recycling is expandable to other region.

In case CBI contained data, suggest to submit opinion by company.

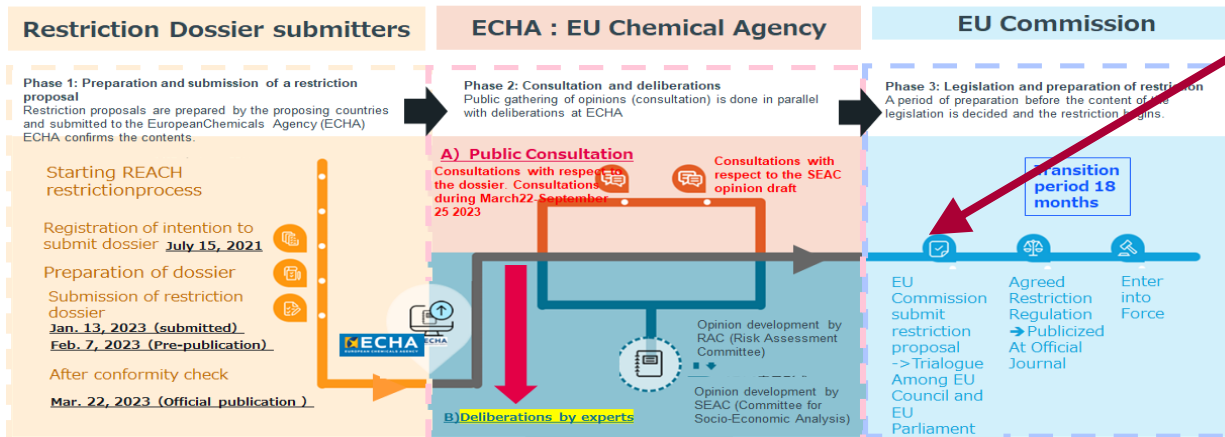
2. Only 2 months for commenting window

Start comments preparation as early as possible, based on BD contents.

3. Emphasize time limit/longer derogation

Clearly state no alternative with past comparison/test data, and ask exemption or no time limit derogation, otherwise, 5 or 12 yrs derogation will be applied.

EU PFAS restriction process : Projection in Phase III



ECHA announced to complete RAC/SEAC opinion by end of 2026. (2025/08/27)。

→ **After opinion submission to EC, Phase III starts**
https://echa.europa.eu/documents/10162/111425157/echa_update_pfas_en.pdf/6775e241-204e-af0a-a2d0-4c16ba2c138d?t=1756287349062

Phase III projection

2027 1H
(estimate)

2028 1H
(estimate)

2028 2H
(estimate)

- EU Commission update restriction list (REACH Annex XVII)
(Within 3 months after receiving ECHA RAC/SEAC opinion)
- EU Commission submit Restriction draft to WTO/TBT
- After decision by Reach Committee, trialogue with EU Council and Parliament for negotiation
- After final agreement among Commission/Council/Parliament, regulation become finalized.
- Publicize regulation at Official Journal
- ※ Enter into Force after transition period.

3. US PFAS related regulatory update

- **Federal Gov't status**
- **State's Gov't status**

US EPA : EPA PFAS Strategic Roadmap

In October 2021, EPA published the PFAS Strategic Roadmap.
2021 - 2024 Subsequently, EPA published specific actions on PFAS.

U.S. PFAS Strategic Roadmap Three key objectives

Research

- ✓ Definition of PFAS categories.
- ✓ Understanding of the source of contamination, route of exposure, and effects on human health
- ✓ Research on PFAS treatment, remediation, destruction, disposal, and
- ✓ A study of the contribution of the cumulative burden of pollution to PFAS in communities of environmental justice concern.

Restrict

- ✓ Take action under the law to control and prevent PFAS contamination and minimize exposure.
- ✓ Assign responsibility for addressing hazards to manufacturing / processing / distribution / import / use / discharge / disposal.
- ✓ Established voluntary program to reduce use and release of PFAS.
- ✓ Prevent the release of PFAS in all communities, regardless of income, race, etc.

Remediate

- ✓ Harmonize actions based on available legal powers to address PFAS pollution.
- ✓ Maximize the performance and funding of responsible parties for the investigation and cleanup of PFAS contamination.
- ✓ Ensure access to resources and assistance to address pollution regardless of income, race, or language.
- ✓ Accelerate and prevent the recurrence of PFAS treatment, remediation, destruction, disposal, and mitigation technologies.

US EPA : PFAS data collection under TSCA article 8(a)(7)

* TSCA: Toxic Substance Control Act

What are the proposed data collection rules?

- In June 2021, EPA published a draft data collection rule, TSCA8 (a) (7), that collects specific information on any PFAS.
- Require manufacturers of PFAS manufactured after 2011 to report certain information
- This proposal would allow EPA to collect data on PFAS that it did not have access to and use it in risk assessments.
- In November and December 2022, EPA issued its final rule in October 2023 after undergoing the Small Business Advocacy Review (SBAR) and soliciting additional comments on the Initial Regulatory Flexibility Analysis (IRFA). (Effective November 13, 2023)

<Person obliged to report>

No exemption for those who manufactured and imported reportable PFASs between January 1, 2011 and December 31, 2022 (impurities, by-products, R & D, articles, small businesses. There are some exemptions for use in medicine and food.)

<Reporting period>

Six months from November 12, 2024 (12 months for small-scale business operators who import only molded products))

<Scope of substances subject to reporting>

- 1) R - (CF₂) -CF (R') R'' Both the CF₂ and CF moieties are saturated carbons
 - 2) R-CF₂OCF₂-R' R and R' are either F, O or saturated carbon
 - 3) CF₃C (CF₃) R' R'' R' and R'' are either F or saturated carbon
- Substances containing at least one structure of (F-gas, including fluoropolymers)

<Details to be reported>

22 items in total, including information on substances, use categories, production, processing, import volumes, by-products, and waste

[Reporting Requirements Form](#)

• **Reporting period postponed again (2026/4/13←25/7/11←24/11/12)**

• **REPA proposed OMB to include calm down reporting requirement**

<https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202504&RIN=2070-AL29>

Federal Gov't DoD : Support PFAS use thru federal law

DoD : Update by 2025 PFAS report

Background of this report

- PFAS are essential to produce, maintain, perform US military system and critical materials for national security and defense.
- PFAS containing products are suffered by withdrawal due to complexed regulation and uncertainty resulting risk around sustainable supply.
- Develop and qualification of alternatives take 5~20 years potentially, and risk around declining capabilities and relying on procurement from foreign countries.



- Need to consider alternative research on critical use for defense and reevaluate technical standard to maintain required performance, remove barrier on alternatives and securing sustainability of supply chain.

Conclusions

- Instead of structure wise definition on PFAS, reconsider PFAS definition by risk based approach taking care of chemical and physical properties difference and exposure route.
- Secure sustainable supply of PFAS to maintain national security and defense capability under declining number of suppliers.
- To secure PFAS supply short term keeping defense capability, need to establish supply chain strategy with developing superior emission control and reduction technology. Also, need to explore alternatives meeting performance and environmental sustainability as long term issue.

CLEARED
For Open Publication
By kempr on Jul 17, 2025
Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Update on Critical Per- and Polyfluoroalkyl Substance Uses

Pursuant to House Report 118-121, page 257, accompanying H.R.4365, the DoD Appropriations Bill, 2024.



July 2025

Office of the Assistant Secretary of Defense for
Energy, Installations, and Environment

The estimated cost of this report or study for the Department of Defense is approximately \$47,000 in Fiscal Years 2024-2025. This includes \$24,000 in expenses and \$23,000 in DoD labor.
Generated on 2025May29 RefID: 6-859F6D6

<https://www.denix.osd.mil/cmrmpp/denix-files/sites/14/2025/07/2025-DoD-Update-on-PFAS-Critical-Uses.pdf>

Federal Gov't FDA : Support PFAS use thru federal law

FDA : PFAS for medical devices

<https://www.fda.gov/medical-devices/products-and-medical-procedures/pfas-medical-devices>



[:vices](#)

All PFAS is not identical

- A certain PFAS (especially low molecule substances) which may relate to concern for human health are being detected at drinking water and environment
- Fluoropolymers (high molecule) have been used for many medical devices with safe for more than several decades.

Fluoropolymers for medical devices

- Fluoropolymers are being used for stent and graft at bloodpipe, pacemaker, etc life support equipment but no alternative are found so far.
- Fluoropolymers are no degrade in body and big enough not to pass thru cell membrane, so quite low harm risk for the patient.

FDA assessment on safe use of PFAS for medical devices

- ✓ FDA together with ECRI (authority for medical device safety) monitor fluoropolymers safety at medical devices.
- ✓ No clear evidence on PTFE impacting patient health issues (data from >1,800 US medical service facility).

PFAS in Medical Devices

PFAS (per- and polyfluoroalkyl substances) and their possible relationship to people's health has been a recent topic of public interest. This page may help you better understand why certain PFAS are used in medical devices.

PFAS are a very broad and diverse group of chemicals with wide industrial uses. There are thousands of different kinds.

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.

Not All PFAS Are the Same

PFAS are a large group of more than 15,000 chemicals that are used in a variety of products. They are not all the same. Some PFAS, typically those chemicals comprised of

FDA expressed no reason to restrict using PFAS for medial use by FDA assessment.

US state gov't : update states regulatory status

- EPA update state level legislation showing 21 states case. *(as of Sep. 2025)
*<https://www.epa.gov/pfas/us-state-resources-about-pfas>
- Key aspect by regulations
 - Short term, restrict specific applications (consumer use like TULAC etc.)
 - 5~10yrs later other uses are restricted other than Currently Unavoidable Uses
 - Reporting requirement for PFAS intentional used products
 - Set maximum exposure limit and remediation action plan
- Mostly states adopt wider PFAS definition like EU
 - Any substance that contains at least one fully fluorinated methyl (CF₃-) or methylene (-CF₂-) carbon atom
 - Wider organic fluorinated substances are in scope

Update state level PFAS regulation (2025)

1) Full ban basis

State	status
Maine	Adopted time phased full ban with exemption and CUU applied case. (LD1537) *CUU(Currently Unavoidable Use) are determined by application
Minnesota	Postponed reporting requirement 6 months •Scope has been changed to exclude commercial and industrial use. • Revised draft to exclude electric/electronics devices as component until 2032 is under discussion2032→to be determined in 2026 (HF1627)
New Mexico	• Adopted full ban excluding fluoropolymers* (HB212) •Time phased ban with exemption and CUU * Definition of FP: Structure only consist of per- or poly fluoro or solid perfluoropolyether under ordinary temperature and pressure
California	•Full ban based draft has been revised to limited ban on consumer use 6 applications, then senator and house approved. Wait for Governor signature (SB682)

Update state level PFAS regulation (2025)

2) Limite restriction states

州	法案の概要状況
Illinoi	House approved revised rule to limit to consumer use (HB2516)
Vermont	Adopted revised rule limiting to consumer use (H.238→Act54) * Package with fluorinated treatment has been added including package and those products packaged. (effective Jan. 1, 2032)
Maryland	Failed to pass (HB1112)
New York	Many proposal for consumer use by application underway
New Jersey	PFAS regulation is under discussion, up to Governor erection (AB5600等)
Washington	Under development of proposal : Safer Products for Washington(SPWA) targeting consumer use

4. Summary

Summary

EU

- 5 countries submitted PFAS restriction dossier in 2023 requesting full ban of PFAS as one group due to persistency
- EU Commission states that unless appropriate alternative exist allow continuous use of non consumer use PFAS subject to strict emission control

2nd consultation for SEAC Opinion draft is expected during 1~2Q, 2026

US

- EPA proceed risk based approach but revision and delay happens
- State level many states started full ban basis legislation at first, but now revised proposal to limited to consumer use mostly are underway except Minnesota

**Federal risk assessment is going to be processed thru one time reporting requirement
States understand full ban impact and gradually shift to limit its scope around
consumer use**

Thank you very much !

Contact: junichi.ishikawa@chemours.com