Due to the high number of participants in this webinar, everyone has been placed on mute and the video option has been disabled.

Questions can be submitted at any time during the event using the chat feature. We will attempt to answer the most common questions during the Q&A segment.

The webinar will commence shortly.

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Protect Your Business & Support EU's Sustainability and Competitiveness – Engaging in the REACH Restriction Process on PFAS

Prepared by Chemours, for APM customers and value chains

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Welcome!



Cedric Triquet
EMEA Strategy and Advocacy Director – APM, Chemours



Yann Lepage
Head of Global Sales – APM, Chemours



Frenk Hulsebosch
Program Director, Chemours

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Antitrust & Competition Laws

DOs

To ensure that no violation of competition law occurs in the context of a meeting, please observe the following together with the leader:

PREPARATION OF THE MEETING

✓ Agenda and meeting documents must not include issues relevant to competition law.

DURING THE MEETING

✓ Discussions should be limited to the agenda topics that were sent in advance.
✓ Take minutes of the full meeting.
✓ In case of spontaneous statements relevant to competition law, you must react immediately and actively to dissociate yourself from the violation.
  - Point out to a participant that this issue must not be discussed.
  - If necessary, postpone the discussion until you have received relevant legal clarification.
  - If the discussion continues, notify your objection in the protocol, suspend the meeting or leave the meeting space. Any action taken in this regard must be recorded in the protocol.
  - Inform the legal counsel of your company about the incident.

AFTER THE MEETING

✓ Minutes of the meetings should be short and straightforward.

DON'Ts

Employees of competing companies are not allowed to formally or informally discuss, exchange information or make arrangements regarding any of the following points:

PRICES, in particular:

- Pricing, price differences, and pricing strategies.
- Individual sales and payment terms; individual discounts, credits, and credit conditions.

PRODUCTION, in particular:

- Individual production or sales costs, costing formulas, methods of cost calculation, costs of production, acquiring, inventory, sales, etc. of products or product groups.
- Changes in production, e.g. for maintenance or limiting the market supply of a product.

TRANSPORTATION, in particular:

- Rates or rate policies for individual shipments, including basing point systems, zone prices, freight, etc.

- FUTURE MARKET BEHAVIOR, in particular:
- Plans of individual companies concerning technology, investment, design, production, distribution and marketing of certain products.
- Agreement on market allocation either geographically or by customers.
- Matters related to actual or potential suppliers or customers, particularly if this might have the effect of excluding them from any market or influencing business conduct of other companies toward them.
- "Blacklists" or boycotts of customers, competitors, or suppliers.

Agenda

1. Why the PFAS restriction proposal matters: economic & sustainability impact
2. What's included: scope and structure
3. Why fluoropolymers shouldn't be included
4. How to take action
5. What's next?
6. Q&A



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We Are In This Together

- *Chemours is committed to responsible manufacturing and has taken industry-leading steps to reduce emissions of fluorinated organic chemicals to the environment by over 99% by 2030.*
- *We support industry-wide government regulation that is grounded in the best available science.*
- *For critical industrial applications, there are currently no viable alternatives, as Fluoropolymers are unmatched in their requirements profile. At the same time, Fluoropolymers are safe when used in their intended way.*
- *We will continue to engage in an open dialogue with authorities, the public and regulators to help further develop meaningful regulation that allows for continued innovation power and a sustainable transformation in the EU.*
- *In this way, we are preparing for the upcoming consultation, where we will present relevant data to support our arguments with facts – but for this we will also need your support!*

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Why Are We Here Today?

We would like to create awareness for the regulatory process of the PFAS restriction proposal and its implications for the industry and value chain.

We encourage you to **engage in ECHA's open consultations to address concerns and unintended consequences** while ensuring that the regulation supports the **EU Green Deal and other policy programs crucial for a successful European future.**

Our goal is that you walk away from this webinar with the ability to :



Fully understand the PFAS restriction proposal (dossier), its **potential implications,** and the **regulatory process.**



Participate in open consultations that started on March 22 to ensure authorities have a **complete and accurate understanding of the value chain and the socio-economic impact of the proposed restriction**. Without data, applications will be banned from the EU market.



Engage with your trade associations to spark a strong industry's voice in the public debate.

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Why You Should Care:
Economic And Sustainability Impact

PFAS Restriction Proposal In A Nutshell

On February 7, the European Chemicals Agency (ECHA) published a regulatory proposal to restrict the manufacture, placing on the market and use of all PFAS in the EU.

Full ban of around 10,000 PFAS, with an 18-month transition phase after the regulation's entry into force. Derogations are suggested for individual applications of 5 to 12 years in sectors essential for society and for which alternatives do not yet exist.

Why a Grouping Approach?

1. Authorities justify the restriction of the entire PFAS group by focusing on persistency as the common property.
2. Authorities are in general concerned that a substance-by-substance approach is too slow to effectively regulate all PFAS.
3. They aim for preventing the industry from just replacing one chemical with another that is identical but might have an even worse hazard profile.

Why It Matters?

A broad ban on PFAS is expected to significantly impact European businesses and industries which are using these substances.

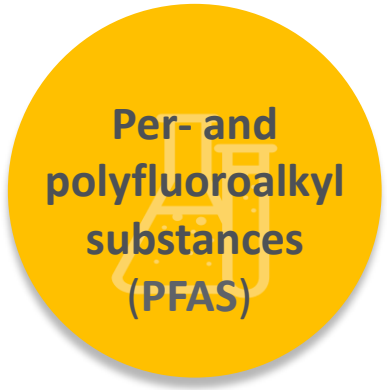
Fluoropolymers are currently essential in a wide range of industries, including hydrogen and clean energy, transportation and automotive, electronics, the chemical industry, oil & gas, food, medical and pharma, and many more.

Open Consultation started on 22 March and will end 25 September 2023.

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Numerous Industries Rely on PFAS

Fluoropolymer's have a unique set of properties and characteristics, making them essential for various applications and uses.



Automotive
Particle filters, fuel hoses, break hoses, semiconductors

Electronics
Wires & cables, semconductors, tubing, piping, fittings, valves, pumps, vessels, instrumentation

Power generation & renewables
Wind turbines, sealings, electrolyzers, PEM

Construction
Heating, air conditioning, insulation

Chemical processing
Tubing, filters, linings, vessels and pipes

Mechanical & plant engineering
Lubricants, production materials, film / tubing

Aerospace
Insulation, wires, semiconductors, sealings, aircraft interior coating, aerospace materials, tapes and gaskets

Medical technology & Pharma Processing
Implants, endoscopy, catheters, dialysis, respirators, anaesthesia equipment, care and surgical textiles

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Not an exhaustive list, just for demonstrative purposes

Example: Essential For Semiconductors

Scenario: Ban of fluoropolymers in semiconductor manufacturing

- **Without fluoropolymers, the European semiconductor industry would collapse**, immediately making almost every sector reliant on the importation of semiconductor chips from Asia and North America.
- **Europe would lose its 10% global semiconductor chip market** share and consequently fail to fulfil the objectives in the EU Chips Act and other EU strategic objectives.
- With a complete Fluoropolymer restriction the supply chain within Europe would cease operations leading **to economic losses of €63.4 billion.** Over **21,000 employees** would face redundancy, incurring a further **social cost of over €3.1 billion**.
- For certain applications, fluoropolymers are also present in final semiconductor devices, **limiting European imports** for critical electronic devices.

Semiconductor manufacturing processes that rely on fluoropolymers

Deposition	Thermal management	Photoresist coating	Lithography	Etching	Ionization	Packaging
		• Tubing • Fluid Handling Components • Baths and Sinks • Wafer Handling • Tanks and Containers • Sensors • Filters	• Flow Meters • Cushioning • Packaging • Release Film • Cleaning Fluid • Chains • Heat Transfer Fluid	• Pumps and Valves • Pressure Regulators • Front-end-of-line (FEOL) and back-end-of-line (BEOL) cleaners • Post-etch residue removers/cleaners		• Post photo-resist removal cleaners • Chemical Mechanical Planarization (CMP) slurry formulations • Post-CMP cleaners

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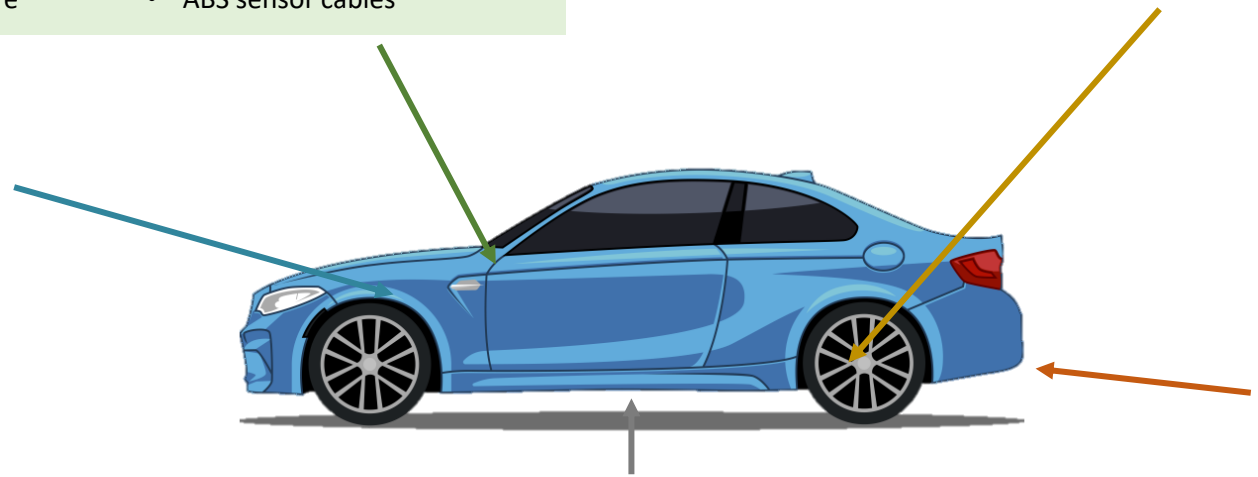
Example: Essential For Automotive

Electrical Systems, Wires, Cables, and Semiconductors

- Semiconductor chips
- Lambda/O2 sensor conduit & grommet
- Electric mirror lubrication
- DC motor bearing lubrication
- Oxygen/NOx Sensor
- Heated seat wire
- Diesel pump wire
- ABS transmission brake sensor wire
- High tension ignition cable
- Battery terminal wire
- Convoluted wire harness conduit
- Cable tie wraps
- Xenon/bi-xenon headlight wire
- Throttle body injection wire
- ABS sensor cables

Transmission & Transaxles

- Internal shift seal ring/clutch piston ring
- Clutch pilot and release bearings
- Clutch bearing lip seals
- Dual mass flywheel replacement
- Auto ORC de-coupler for alternators
- Driveshaft: CV joint lubrication



Engine & Powertrain

- Head cylinder & oil pan gasket
- Transmission & crankshaft seals
- Valve stem seals
- Bearing lubrication
- Flexible o-ring & piston skirt coating
- Front engine accessory drive
- Throttle body bearings & lubrication
- ETC lubrication
- Actuator assembly; valve belt tensioner
- Air intake manifold gaskets
- Turbocharger hoses

Fuel Systems

- Fuel line: feed return, vapor
- Fuel line quick connector seals
- Interconnect hoses
- Filler neck hose
- Fuel rail crossover
- FIORs
- Fuel sender seal
- Connector o-rings
- Diaphragm pressure regulator
- Anti-expulsion tank valve
- Pressure injection bushing

Chassis

- ABS interconnected hose
- Hydraulic break lines
- Impulse hose at wheel
- Brake pad clips, shim and wear indicator
- Shock struts/absorber piston seals
- Axle seals
- NVH busing - lubrication
- Steering ball bushing incl. lubrication
- Steering ball joint insert and shaft steering splines
- Steering assist pump piston rings

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Regulatory Impact Even Beyond The EU

The regulation's impact is not regional but global

Global Value Chain

- The regulation aims to restricts manufacturing, use, and placing on the market. This affects production in as well as imports into the EU.
- Hence, it could affect any business that trades / processes PFAS or has parts of its supply chain in Europe, and it could impact freedoms to import and export.

A precedent beyond Europe

- EU regulations often influence policy in the Americas and other markets – this REACH restriction is no exception.
- EU regulation sometimes leads private industry around the world to adapt to not be cut off from the single market.
- UK REACH, following EU REACH model closely, can serve as an example of the precedent setting power the EU has for other world regions.



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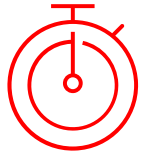
What's Included:
Scope And Structure

Far Reaching Restriction Proposal

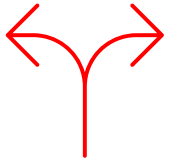
Per- and polyfluoroalkyl substances (PFASs) defined as: Any substance that contains at least one fully fluorinated methyl (CF3-) or methylene (-CF2-) carbon atom (without any H/Cl/Br/I attached to it).



Proposal to ban over 10,000 PFAS as defined by the OECD in sectors where the submitters assumed there is **technically and economically feasible alternatives**.



Certain time-bound derogations which are limited in number and focused on very specific applications, i.e. PEM in fuel cells. If a derogation for a certain sector/ application is not listed, the application is automatically included in the ban.



Additionally: Potential derogations to be reconsidered after receiving more evidence during the public consultation. The applications addressed are in the medical, transport, industrial or semiconductor sectors.

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Derogations Are Delayed Bans

Even if 5 or 12-year derogations apply for a sector (6.5/13.5 years after EiF), they significantly impact opportunities for future development and growth.



NO planning certainty



NO investment in technologies' future



NO research and development

The industry needs time-unlimited derogations for fluoropolymers

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Why Fluoropolymers Should Not Be Banned

Safe For Intended Use

A substantial body of scientific data demonstrates that fluoropolymers **do not pose a significant risk to human health or the environment** because of their unique characteristics.

1.

Persistency in fluoropolymers adds value to society, industries, and contributes to sustainability.

2.

All available data demonstrate that fluoropolymers are **NOT bio-available, toxic or even mobile**.

3.

Fluoropolymers do **NOT dissolve in or contaminate water or generate microplastics** and **CANNOT enter or accumulate in a person's bloodstream**.

4.

Fluoropolymers meet the OECD's criteria for **"polymers of low concern"** as they do **NOT present significant toxicity concerns** and do **NOT degrade into other PFAS**.

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Lack Of Equivalent Alternatives

While some chemistries might offer a similar performance to fluoropolymers for a particular parameter or property, it is the unique combination of properties that sets fluoropolymers apart and makes them vital to the sectors and industries they serve.

Fluoropolymers have a **unique combination of properties**

- ✓ Durable
- ✓ Efficient
- ✓ Reliable
- ✓ Versatile

Important characteristics for a wide range of products and technologies

- ✓ Fire resistance
- ✓ Weather resistance
- ✓ Temperature resistance
- ✓ Chemical resistance
- ✓ Non-wetting and non-sticking properties
- ✓ High-performance dielectric properties

Fundamental for numerous industries

- ✓ Fluoropolymers in the manufacture of **semiconductors**
- ✓ Nafion™ membranes in hydrogen **fuel cells and electrolyzers**
- ✓ Teflon™ fluoropolymers & Viton™ elastomers to protect **pipes, vessels and equipment** in the **chemical industry**
- ✓ Teflon™ fluoropolymers in manufacturing of **food and medicine** to prevent contamination
- ✓ Teflon™ fluoropolymers and Krytox™ lubricants to assure safe and reliable operation of **airplanes**
- ✓ Krytox™ as unique lubricant approved for **oxygen medical application** for safety reason.

As it will take years or decades to develop alternatives – if possible – a phase out of fluoropolymers will result in a gap in capabilities for innovation, products, and industries.

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Why Manufacturing Of Fluoropolymers Matters

Responsible manufacturing is a requirement for the sustainable production of fluoropolymers.

It is important to understand that **non-fluorinated polymerization aids / surfactants (NFA/NFS) are NOT a solution.** While they can be used in the manufacturing for some products, they cannot be used to produce the full portfolio of Fluoropolymers that are currently commercially available and that are essential for society. Fluorinated Polymerization aids remain crucial for high-performance applications.

Understanding of the impurity profiles from the manufacturing process, is key to design efficient emission controls. The use of **targeted and non-targeted residue analysis** plays an important role to gain this understanding.

What ever polymerization aid is being used, state of the art **emission control technologies** are required.

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Managed Lifecycles of Fluoropolymers



Capture, recover and recycle during manufacturing and processing



Make products more durable and long-lasting; as an added-value and form of emission control



End-of-life recovery and recycling of fluoropolymers in products, wherever possible



Existing regulations in place for waste management

- ✓ ***End of Life Vehicles Directive***
- ✓ ***Battery Directive***
- ✓ ***Waste Electrical and Electronic Equipment Directive***
- ✓ ***Landfill Directive***
- ✓ ***Urban Waste Water Treatment Directive***
- ✓ ***Waste Incineration Directive***



Fluoropolymers do not degrade into other PFAS in the environment

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Grouping All PFAS Is A Mistake

Fluoropolymers are considered as PFAS due to their structural definition and persistency.
Fluoropolymers do **NOT share the toxicological and environmental profiles** associated with other PFAS.
Persistency in itself is **NOT sufficient** to restrict a substance under REACH.

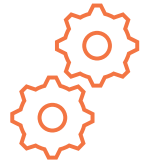
PFAS significantly differ from one another in terms of:



Physical and chemical properties



Health and environmental profiles



Manufacturing processes, uses, and benefits

Comparing all PFAS with each other is like comparing olive oil with plastic bags.

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How To Take Action

Answering In Accordance With ECHA Guideline

It is crucial to answer ECHA's survey following 10 specific topics:

1. **Sectors and (sub-)uses** to which comments apply; according to sectors and uses identified in the report
2. **Emissions across different stages of lifecycle of products**, i.e. manufacture, use and end-of-life
3. **Emissions in the end-of-life phase with respect to waste management options**: effectiveness of incineration
4. Impacts on the **recycling industry**
5. For **proposed derogations**; information on **tonnage of PFAS used per year** and resulting emissions
6. **Information on alternatives** and **socio-economic impacts** for **missing uses** not covered by the report
7. **Information on alternatives** and **socio-economic impacts** for **potential derogations** marked for reconsideration by the report
8. **Information on alternatives** and **socio-economic impacts** for **uses identified** in the report
9. **Degradation potential of specific PFAS sub-groups** (trifluoromethoxy, trifluoromethylamino- and difluoromethanedioxyderivatives)
10. Information on **new analytical methods** for PFAS not yet considered in the report

Here you find the ECHA survey online here.

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What Data and Information Is Most Important?

No data, no market – providing information is critical. The authorities' vision will be harder to shape down the process.



Nature and type of fluoropolymer used

Extent and type of use (in particular, if these are not yet covered in the restriction report and no alternatives are available)

Functionality, economic and/or social benefits of fluoropolymer and its respective use

Performance criteria standards, specifications, requirements

Socio-economic impacts of the restriction

Evaluation of possible alternatives

Emission control measures taken (during manufacture, processing and use, if applicable)

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Estimating socio-economic impact of such preliminary and often vague restrictions is often complicated. Please **feel free to make assumptions** – as much information as you can provide is helpful to the authorities.

How To Best Specify Your Response

Data based response	➢ Establish **use of fluoropolymers** in critical applications ➢ Provide detail on **performance criteria**, function, and benefits of fluoropolymers ➢ Share information on **standards and specifications** required ➢ Include **supporting evidence** to justify the information submitted
Information on alternatives	➢ Description of the **search for alternatives** to date (time span and scope) ➢ If applicable, **reasons for the unsuccessful search** for alternatives so far ➢ If applicable, description of the **availability and technical feasibility of possible alternatives** and the criteria that speak compellingly against their use ➢ If applicable, description of the **economic and social impacts associated with any available alternatives**
Information on economic impact	➢ Focus on **incremental costs and benefits**, i.e. those related to implementing vs. not implementing the restriction ➢ Description of the economic **impact both on your organization** as well as the broader **value chain / downstream users** ➢ Overview of **costs and time period required** for substitution of substances / materials ➢ **Organizational, financial, societal, and political consequences** associated with substitution substances/materials ➢ Economic / societal **consequences of a total loss of use**
Information on Lifecycle	➢ **Recovery and recycling** of (fluoropolymers in) your products; including available **incineration data** ➢ **Existing regulations** in place that concern your industry / products in terms of safety and waste management ➢ **Health and environmental profile of your** products / chemicals used (e.g. FP do not degrade into smaller PFAS in the environment) ➢ Durability as an added value and emission control

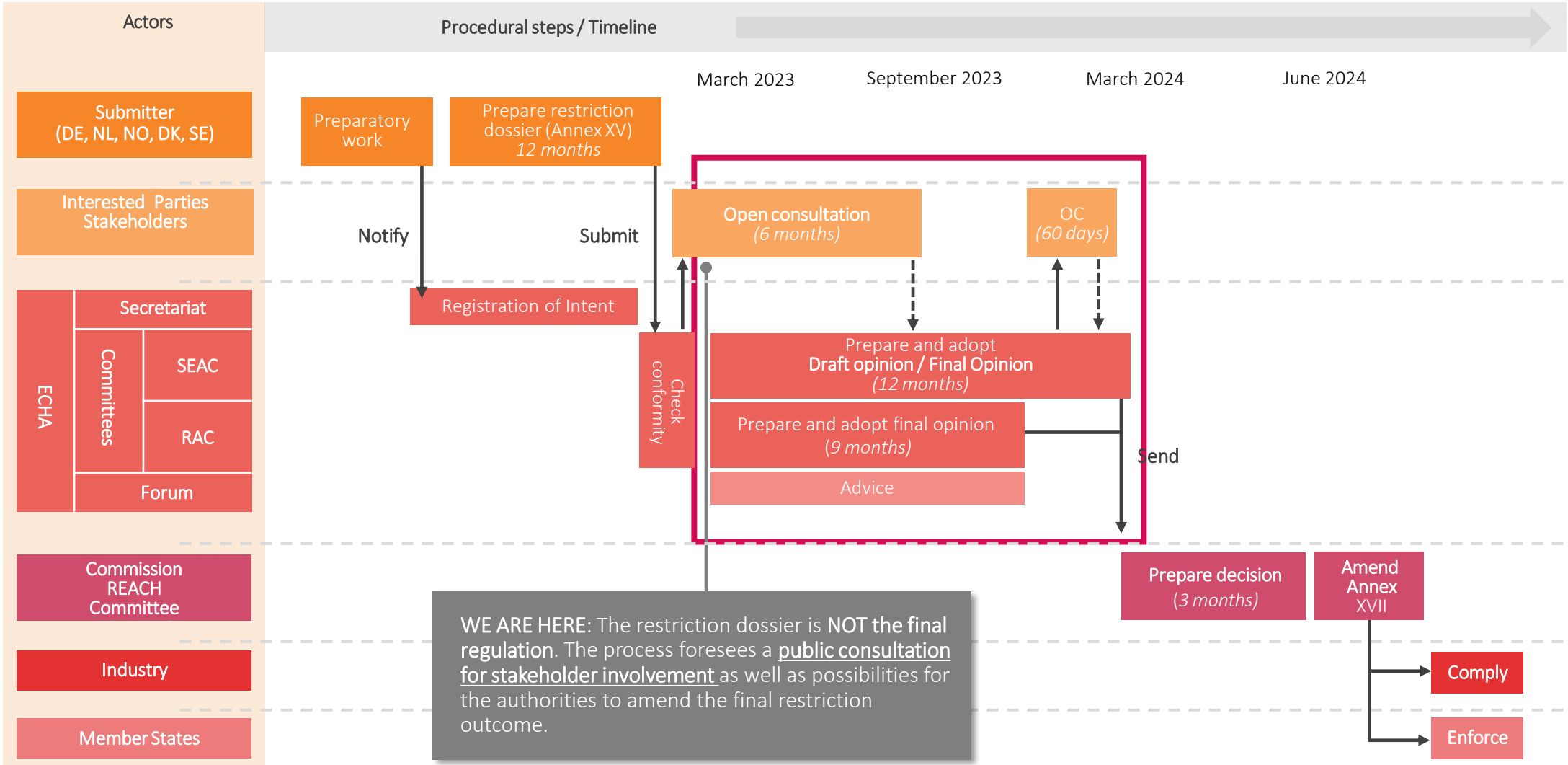
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Its important that ECHA receives this information from the **entire fluoropolymer value chain**, not just the manufacturers. The voice of OEMs in particular has a lot of influence. Get involved as a company, but also **push your industry group** to participate.

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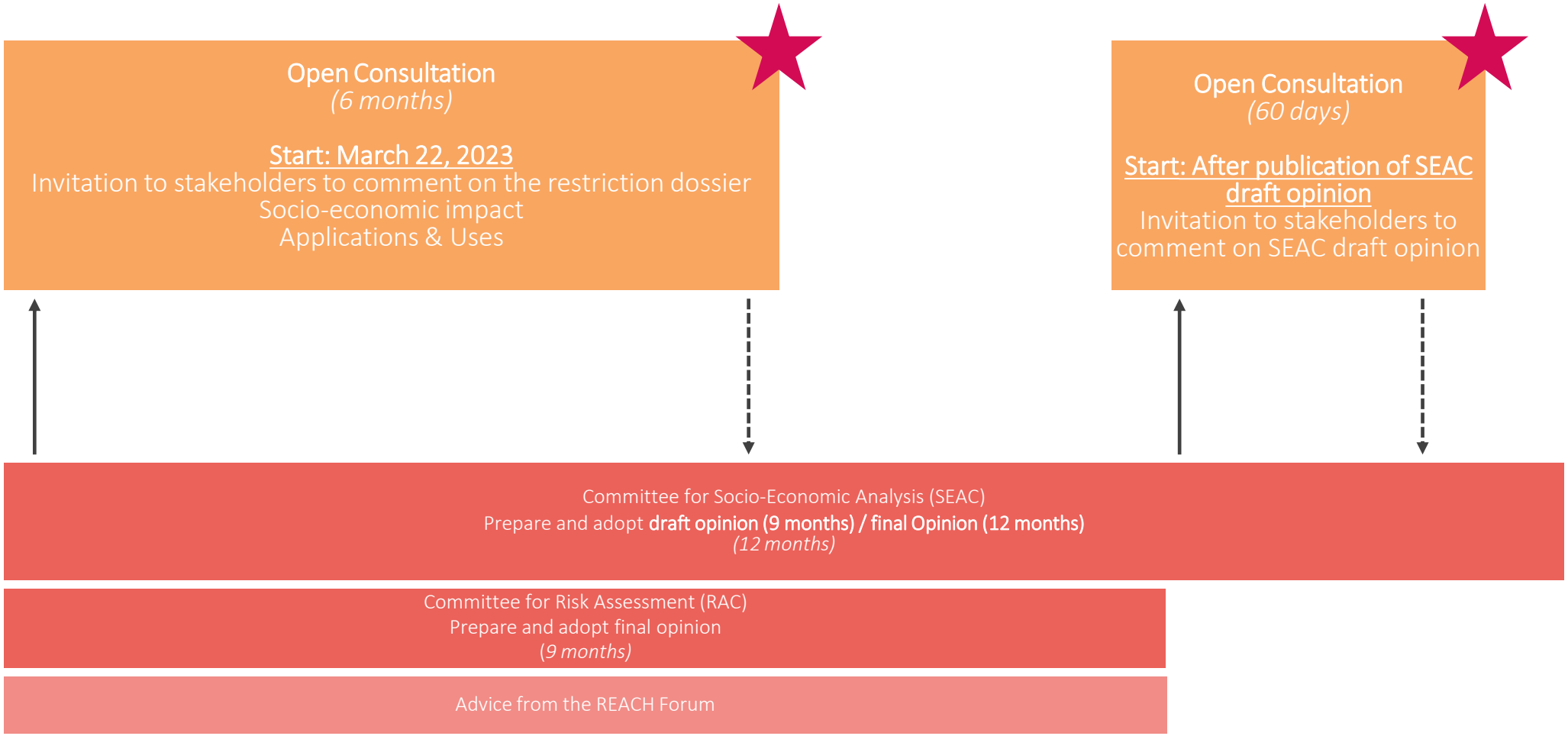
What's Next?

A Key Moment in a Long Regulation Process



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Consultations: Critical Opportunities to Engage



Why The Open Consultations Are So Important

Industry input and data is critical to underline the need for **proposed and additional derogations** and to **help SEAC and RAC in formulating an accurate opinions**.



The entire fluoropolymer value chain has **leverage and valuable information to provide**; this includes downstream (processors) and end users (e.g. OEMs).



No data, no market – providing information is critical. The authorities' vision will be harder to shape down the process.



Acting now is essential. The process will become increasingly political.

Based on the information gathered during the public consultation, the scientific committees will form their opinion on whether the proposed restriction is appropriate in **reducing the risks to health / environment** as well as on the **socio-economic impacts, i.e. benefits and costs to society,** associated with the proposal.

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How To Submit Your Data And Information

Stakeholders can **submit information** to ECHA and answer to the ECHA survey through the ECHA website here. When submitting information, you have an option to include **confidential attachment** for sensitive information (Section V).

ECHA published a very helpful guide on how to submit information and structure answers to its survey. You can find this guide here.

Submit important information early in the consultation phase (first 6 weeks). This way, this information can already be taken into account during the first meetings of the ECHA Committees. It is recommended to not wait until the end of the public consultation.

On **April 5**, 10:00-12:00h CET, ECHA will host a **webinar to provide additional information**. Questions on the dossier and the consultation can already submitted here.

Additional information on the PFAS restriction proposal can be found here.



Industry data provided in public consultations will play a key role in shaping the final proposal

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What You Can Do

Industry must collaborate globally among peers to ensure the REACH regulatory process does not jeopardize the EU's goals on sustainability and innovation. **You can help us shape a constructive regulatory outcome:**



Submit your own response for the public consultation, to ensure the REACH-competent authorities have a complete and accurate vision of the value chain.



Equip your customers with the information they need to participate to the public consultation that started on **March 22** and engage REACH competent authorities.



Foster a broader EU industry dialogue on the safe and sustainable use of chemicals in Europe.



In the coming week, you will receive an InfoPacket from Chemours with additional information and resources regarding the public consultation and next steps. Please feel free to distribute down the value chain.
You can also visit our website for additional information and updates on the regulatory process.

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Again: We Are In This Together

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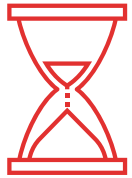
Review Of Next Steps



Chemours will continue to be **Your Trusted Partner** as you engage industry and authorities



Contact Us with any questions regarding the public consultation or the broader restriction process.
You can also visit our website for additional information.



The time to engage is **Now.**

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Q&A



Thank you!

