



The Natural Resources Defense Council (NRDC) is a US-based environmental and public health NGO with the expertise of some 770 scientists, lawyers, and policy advocates and the support of over three million members and online activists. NRDC fights for the rights of all people to clean air and water and a healthy environment. As we take action to safeguard the planet and our communities, it is essential that we address the devastating effects of PFAS pollution in our air, water, homes, and communities.

Here we submit comments on NRDC's overall support of ECHA's Universal PFAS Restriction proposal, specifically regarding the PFAS definition, accounting for financial conflict of interest, use of alternatives analyses that include a functional substitution approach, and the need for transitional periods to be as short as possible. NRDC is also submitting separate comments with information supporting the ability of the TULAC (Textiles, Upholstery, Leather, Apparel and Carpets) industry to quickly phase out the use of PFAS.

PFAS Are a Global Health Threat.

PFAS (per- and polyfluoroalkyl substances) are a large group, or class, of fluorinated chemicals that are widely used in consumer products and industrial processes. Often referred to as "forever chemicals," PFAS are extremely resistant to breakdown and can build up in humans and animals. They can also spread quickly in the environment and can be harmful to humans and many other species at extremely low doses. Known health effects include cancer, liver disease, decreased fertility, hormone disruption, developmental harm, and effects on the immune system—including decreased response to vaccines.

There is an ongoing global environmental and public health crisis due to the widespread production and use of PFAS in consumer and industrial products despite their known hazards. Millions of people in the EU have been exposed to unsafe levels of PFAS. The Universal PFAS Restriction proposal is a policy solution that is reflective of the scale of this global crisis.

We support the scientific consensus definition of PFAS, as defined by the OECD.

PFAS covered in the restriction proposal are defined by the OECD scientific consensus definition, with the exception of those PFAS that are thought to be “fully degradable.”¹ The OECD definition of PFAS is widely accepted by the scientific community and states that PFAS are “fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF₃) or a perfluorinated methylene group (–CF₂–) is a PFAS.”² We support the restriction proposal’s reliance on the OECD definition, which specifically focuses on the persistence that is conveyed to molecules containing fully fluorinated methyl or methylene moieties. However, we question the proposed exceptions from this definition for chemicals that the proposal suggests may be “fully degradable”. In an analysis of 515 PFAS registered under REACH, Rudin et al., noted that 26 of the PFAS would be exempted from the restriction proposal due to the proposal’s “fully degradable” exemption.³ However, according to the analysis conducted by Rudin et al., data in REACH suggests that 17 of these 26 chemicals are not readily biodegradable, and there was no data available for the remaining 9 chemicals, thereby raising doubts about whether or not the PFAS proposed for exemption are, in fact, “fully degradable.”⁴ Therefore, we recommend that no exceptions be made, and the restriction proposal apply to any PFAS meeting the scientifically agreed upon OECD definition.

We further urge ECHA to stand strong against additional calls for carve outs and exceptions to the definition used in the restriction proposal. We are aware that industries, particularly those that manufacture, process, and use PFAS, have argued for excluding certain subgroups of PFAS, such as fluoropolymers or gaseous and volatile PFAS, from the definition. For example, industry interests have promoted the idea that fluoropolymers are “safe” and therefore should not be covered by the restriction proposal. This is wrong in several respects. Firstly, PFAS manufacturers have never acknowledged the threat that their chemicals pose—even when

¹ Federal Institute for Occupational Safety and Health, National Institute for Public Health and the Environment (RIVM), Swedish Chemicals Agency (KEMI), Norwegian Environment Agency, and The Danish Environmental Protection Agency. “ANNEX XV Restriction Report: Proposal for a Restriction of Per- and Polyfluoroalkyl Substances (PFASs).” ECHA, February 7, 2023. <https://echa.europa.eu/documents/10162/f605d4b5-7c17-7414-8823-b49b9fd43aea>.

² OECD. “Reconciling Terminology of the Universe of Per- and Polyfluoroalkyl Substances: Recommendations and Practical Guidance.” Series on Risk Management, July 9, 2021. [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/CBC/MONO\(2021\)25&docLanguage=En](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/CBC/MONO(2021)25&docLanguage=En).

³ Rudin, Elvira, Juliane Glüge, and Martin Scheringer. “Per- and Polyfluoroalkyl Substances (PFASs) Registered under REACH—What Can We Learn from the Submitted Data and How Important Will Mobility Be in PFASs Hazard Assessment?” *Science of The Total Environment* 877 (June 15, 2023): 162618. <https://doi.org/10.1016/j.scitotenv.2023.162618>.

⁴ Ibid.

internal documents demonstrate that the companies have been aware of the risks for decades.⁵ In addition, industry's claims for the inherent safety of fluoropolymers are unfounded as exposures during fluoropolymer production, use, and disposal have been linked to health harms. Fluoropolymers do not come into the world fully formed nor do they remain in that form; industry's attempt to limit consideration of impacts to the use of fluoropolymers is therefore misleading and incomplete. The production of polymers is a major source of PFAS pollution, especially from the monomers used to create the polymers.⁶ In fact, most of the contamination in West Virginia and North Carolina in the United States, in the Veneto region in Italy⁷, and the Rhine River in Germany⁸ is from the production of fluoropolymers. Thus, consideration of the full lifecycle of fluoropolymers, including the production, use and end of life is necessary to fully understand and address the scope of the PFAS crisis, and it is essential that fluoropolymers are not excluded from the definition of PFAS (which they firmly fit within).

Others have argued for exempting certain PFAS from the definition based upon their use – in refrigeration, pharmaceuticals, or pesticides, for example. The uses of PFAS may be a relevant consideration for some potential regulatory steps, including prioritizing and focusing regulation based on availability of alternatives or within an essential use framework, but usage is irrelevant to a science-based definition and should not be a basis or excuse for defining PFAS narrowly. PFAS are PFAS and what uses we prioritize should be a separate consideration.

Recently, likely under pressure from industry,⁹ the U.S. Environmental Protection Agency (EPA) announced its decision to define PFAS on a case-by-case basis during rule making and agency actions.¹⁰ In doing this, the EPA is refusing to adopt a standardized definition based on the best available science. This is not supported by a wide range of stakeholders, including drinking water utilities associations (American Water Works Association and Association of Metropolitan Water Agencies), state environmental agencies (Association of State Drinking Water Administrators, National Association of Clean Water Agencies, and Environmental Council of

⁵ Gaber, Nadia, Lisa Bero, and Tracey J. Woodruff. "The Devil They Knew: Chemical Documents Analysis of Industry Influence on PFAS Science." *Annals of Global Health* 89, no. 1 (June 1, 2023): 37. <https://doi.org/10.5334/aogh.4013>.

⁶ Lohmann, Rainer, Ian T. Cousins, Jamie C. DeWitt, Juliane Glüge, Gretta Goldenman, Dorte Herzke, Andrew B. Lindstrom, et al. "Are Fluoropolymers Really of Low Concern for Human and Environmental Health and Separate from Other PFAS?" *Environmental Science & Technology* 54, no. 20 (October 20, 2020): 12820–28. <https://doi.org/10.1021/acs.est.0c03244>.

⁷ Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto. "Il composto cC6O4 nel Po," May 19, 2023. <https://www.arpa.veneto.it/arpav/pagine-generiche/il-composto-cc604-nel-po>.

⁸ Pan, Yitao, Hongxia Zhang, Qianqian Cui, Nan Sheng, Leo W. Y. Yeung, Yan Sun, Yong Guo, and Jiayin Dai. "Worldwide Distribution of Novel Perfluoroether Carboxylic and Sulfonic Acids in Surface Water." *Environmental Science & Technology* 52, no. 14 (July 17, 2018): 7621–29. <https://doi.org/10.1021/acs.est.8b00829>.

⁹ Yohannan, Suzanne. "Industry Asks Senate Panel To Narrow PFAS Definition In Draft Bill." *Inside EPA*, August 14, 2023.

¹⁰ Perkins, Tom. "EPA's New Definition of PFAS Could Omit Thousands of 'Forever Chemicals.'" *The Guardian*, August 18, 2023. <https://www.theguardian.com/environment/2023/aug/18/epa-new-definition-pfas-forever-chemicals>.

the States)¹¹, independent scientists with expertise in PFAS¹², environmental and health NGOs,¹³ and 17 Attorneys General,¹⁴ all of which have urged the EPA to adopt the OECD definition or a similar definition that has been adopted by 18 US states, which define PFAS as chemicals with “at least one fully fluorinated carbon atom.”

It is important for the EU to prioritize unbiased sources of information to inform decision-making.

ECHA has requested feedback from a wide range of stakeholders on the Universal PFAS Restriction proposal. It should be noted that many of the commenters are likely to be businesses or industries with significant financial investments in existing and future PFAS chemistries. Although these stakeholders are well poised to provide helpful technical information about the products they produce and the intended uses of PFAS in products or industrial processes, history has shown that they should not be trusted to be forthcoming in providing accurate information on potential health or environmental risks posed by PFAS.¹⁵ Indeed, they have hidden information about the risks of PFAS in the past. Their assessment of availability of safer alternatives is also potentially affected by their financial conflict of interest. It is not in their best short-term interest to suggest alternatives to the chemistries that they have already established and/or are currently developing.

¹¹ US EPA. “Response to Comments Document on the Draft Fifth Contaminant Candidate List (CCL 5),” October 2022. <https://www.epa.gov/system/files/documents/2022-10/Response%20to%20Comments%20Document%20on%20the%20Draft%20Fifth%20Contaminant%20Candidate%20List%20%28CCL%205%29.pdf>.

¹² Andrews, David Q., Linda S. Birnbaum, Arlene Blum, Courtney C. Carignan, Alan Ducatman, Philippe Grandjean, Rashmi Joglekar, et al. “Re: Docket Nos. EPA-HQ-OPPT-2020-0549, EPA-HQ-OW-2018-0594; Toxic Substances Control Act Reporting and Recordkeeping Requirements for Perfluoroalkyl and Polyfluoroalkyl Substances, and Drinking Water Contaminant Candidate List 5-Draft,” September 27, 2021. <https://www.regulations.gov/comment/EPA-HQ-OPPT-2020-0549-0089>.

¹³ Natural Resources Defense Council, Public Employees for Environmental Responsibility, Southern Environmental Law Center, and Earthjustice. “Letter to US EPA Administrator Michael Regan Re: EPA’s Definition of PFAS,” January 3, 2023. <https://www.nrdc.org/sites/default/files/2023-08/administrator-regan-epa-definition-pfas-letter-20230103.pdf>.

¹⁴ Attorneys General of the Commonwealths of Pennsylvania and Massachusetts and, the States of Arizona, Colorado, Connecticut, Hawaii, Illinois, Maine, Maryland, New Jersey, New York, North Carolina, Oregon, Rhode Island, Wisconsin, and and the City of New York and the District of Columbia. “RE: Docket ID No. EPA-HQ-TRI-2022-0270; Multistate Comments in Response to U.S. Environmental Protection Agency’s (‘EPA’s’) Proposed Rule to Add PFAS as Chemicals of Special Concern for TRI Reporting under EPCRA and the Pollution Prevention Act; 87 Fed. Reg. 74379 (December 5, 2022),” February 3, 2023. <https://www.attorneygeneral.gov/wp-content/uploads/2023/02/Multistate-Comments-in-Support-of-PFAS-TRI-de-minimis-exemption-elimination-2023.pdf>.

¹⁵ Gaber, Nadia, Lisa Bero, and Tracey J. Woodruff. “The Devil They Knew: Chemical Documents Analysis of Industry Influence on PFAS Science.” *Annals of Global Health* 89, no. 1 (June 1, 2023): 37. <https://doi.org/10.5334/aogh.4013>.

The industry play book is premised on the “distract, delay, disrupt” method of avoiding regulations or other oversight measures.¹⁶ It is imperative that ECHA consider these potential financial conflicts of interest when considering requests for additional or longer derogations. In some instances, ECHA seems to have already noted these concerns. For example, in the instance where there was conflicting stakeholder information on the availability of alternatives for window film manufacturing, no derogations were proposed. ECHA should carefully consider how financial conflicts of interest may potentially bias information received for this proposal.

We need, and are capable of, developing innovative solutions that will help us reach societal, economic and environmental goals without poisoning communities.

We are aware that various industries are making claims that PFAS chemistries are critical for our society - for example in technologies involved in transitioning into the “clean, sustainable future” needed to address climate change.¹⁷ It may be the case that there are some current uses of PFAS that serve a necessary function in a critical product or process, but this should not be taken on faith, or considered the default, or accepted indefinitely, especially considering the widespread use of PFAS, including many nonessential uses such as cosmetics, textiles, food packaging and cleaning products. Furthermore, this “critical chemistries”¹⁸ narrative has already been called into question in other sectors that rely on PFAS. For example, PFAS were said to be critical ingredients in aqueous film forming foams (AFFF) for firefighting. Time and again, people were told that PFAS in AFFF were safe and that fire fighting foams could not be made without PFAS.¹⁹ Yet, when pushed, industry was able to deliver better alternatives. There are now many PFAS-free foams available and in use, including some that are GreenScreen certified.²⁰ The threat PFAS poses to public health and the environment warrants a similar challenge to any “critical chemistries” narrative being used to justify the continued use of PFAS.²¹ Any claims of necessity must be examined through a rigorous framework that considers whether the function provided by PFAS is necessary for the product to work, the availability of safer alternatives, and how critical to health, safety and the functioning of society the product is.

¹⁶ Goldberg, Rebecca F., and Laura N. Vandenberg. “Distract, Delay, Disrupt: Examples of Manufactured Doubt from Five Industries.” *Reviews on Environmental Health* 34, no. 4 (December 1, 2019): 349–63. <https://doi.org/10.1515/reveh-2019-0004>.

¹⁷ *Chemours Neighbors*, 2022. <https://www.youtube.com/watch?v=q8YuzJ56PZ0>.

¹⁸ Chemours. “Critical Chemistries,” 2023. <https://www.chemours.com/en/chemistry-in-action/critical-chemistries>.

¹⁹ Lerner, Sharon. “The U.S. Military Is Spending Millions to Replace Toxic Firefighting Foam with Toxic Firefighting Foam.” *The Intercept*, February 10, 2018. <https://theintercept.com/2018/02/10/firefighting-foam-afff-pfos-pfoa-epa/>.

²⁰ GreenScreen® For Safer Chemicals. “GreenScreen Certified™ for Firefighting Foam.” Accessed September 1, 2023. <https://www.greenscreenchemicals.org/certified/fff-standard>.

²¹ American Chemistry Council. “PFAS: Critical to Renewable Energy.” American Chemistry Council, 2022. <https://www.americanchemistry.com/chemistry-in-america/chemistries/fluorotechnology-per-and-polyfluoroalkyl-substances-pfas/pfas-critical-to-renewable-energy>.

Transitional periods should be as short as possible, and no time-unlimited derogations should be allowed.

Due to the urgency of addressing the PFAS crisis, transitional periods should be as short as possible, and there should be no time-unlimited derogations. No uses of PFAS should receive derogations unless they are currently unavoidable, i.e. temporarily necessary. Furthermore, transitional periods should not extend longer than the phase out deadlines already in place both within and outside of the EU. For example Denmark banned PFAS use in food packaging in 2020,²² and multiple states within the U.S. have followed suit. There is no reason for food packaging to receive a derogation. ECHA has correctly identified numerous other sectors for which there is sufficient evidence pointing to the existence of technically and economically feasible alternatives and as such there is no need for any derogation in these sectors.

However, ECHA has also identified uses within sectors in which derogations with significant transitional times may be needed. We support ECHA's approach in not lumping whole sectors together when determining derogations. There may be specific uses within a sector that warrant a derogation, but as ECHA has correctly concluded, that should not be blanketly applied to all uses within a sector.

Where PFAS are providing a necessary function, ECHA should ensure comprehensive alternatives assessments that take a functional substitution approach to find safer alternatives. The functional substitution approach is best practice for alternatives assessments and allows consideration of the broadest range of alternatives, including changes in technologies, materials, systems and product designs, as well as chemical alternatives.²³ Additionally, it is key to consider the potential impacts of alternatives over the life cycle from production, to use and disposal.²⁴ Taking a functional substitution approach with life-cycle considerations will both help in avoiding “regrettable substitutions” and spur innovation of safer alternatives. ECHA should pay particular attention to the action areas identified in the 2018 “Strategy to promote

²² Ministeriet for Fødevarer, Landbrug og Fiskeri. Bekendtgørelse om fødevarekontaktmaterialer og om straffebestemmelser for overtrædelse af relaterede EU-retsakter, BEK nr 681 af 25/05/2020 § (2020). <https://www.retsinformation.dk/eli/lta/2020/681>.

²³ ECHA. Substances of concern: Why and how to substitute? https://echa.europa.eu/documents/10162/3079426/why_and_how_to_substitute_en.pdf/93e9c055-483c-743a-52cb-1d1201478bc1

ECHA (2018) Strategy to promote substitution to safer chemicals through innovation. https://echa.europa.eu/documents/10162/17228/250118_substitution_strategy_en.pdf/bce91d57-9dfc-2a46-4afd-5998dbb88500?t=1516881185315

OECD (2021) Key Considerations Identification and Selection of Safer Chemicals Alternatives. <https://www.oecd.org/chemicalsafety/risk-management/guidance-on-key-considerations-for-the-identification-and-selection-of-safer-chemical-alternatives.pdf>

²⁴ Alcantar, K., Blake, A., Edwards, S., and Singla, V. (2017) Selecting Safer Alternatives to Toxic Chemicals and Ensuring the Protection of the Most Vulnerable: A Discussion Draft. <https://www.nrdc.org/sites/default/files/toxic-chemicals-vulnerable-populations-report.pdf>

substitution to safer chemicals through innovation” and identify which would be most impactful to accelerate replacement of PFAS with safer alternatives.²⁵

We would like to highlight the alternatives analysis on refrigerants submitted by The Massachusetts Toxics Use Reduction Institute (TURI) that does use a function substitution approach. TURI is an independent government agency tasked with helping implement the state’s Toxics Use Reduction Act. The alternatives analysis submitted by TURI highlights the risks associated with derogations in the refrigerant space as well as the feasibility of adapting non-halogenated refrigerant gasses in various sectors.²⁶ We encourage ECHA to seek out and prioritize other similar functional-based, comprehensive alternatives analyses in its decision making. Importantly, whether as part of the alternatives analysis process or as a separate step, there should be thorough consideration of whether the function provided by the chemical is necessary.

In Conclusion.

There may be currently necessary uses of PFAS, but PFAS themselves are not a critical chemistry. As we move forward, we can achieve our societal goals of a healthy and sustainable future without further polluting the planet and its people with PFAS. We can and should develop innovative solutions that will help us reach our goals without depending on toxic forever chemicals.

Respectfully submitted,



Anna Reade, PhD
Senior Scientist, Toxics
Natural Resources Defense Council



Katherine Pelch, PhD
Scientist, Toxics
Natural Resources Defense Council

²⁵ ECHA (2018) Strategy to promote substitution to safer chemicals through innovation.
https://echa.europa.eu/documents/10162/17228/250118_substitution_strategy_en.pdf/bce91d57-9dfc-2a46-4afd-5998dbb88500?t=1516881185315

²⁶ Advanced data from an upcoming report on an assessment of alternatives to HFCs and PFAS for refrigeration, a collaboration between NRDC and TURI.