Judah Prero

Who is commenting? *(choose the best fit)*
Representative of a product manufacturer(s)

If you are commenting as a representative, what is the name of the entity you are commenting on behalf of?
Please see attached response.

If you represent a product manufacturer or industry group, what industry(ies) do you represent?
Please see attached response.

If you represent a product manufacturer, what types of components, products, or product categories do you manufacture that you will be requesting a CUU determination for?
Please see attached response.

Do you have any recommended changes or other considerations that you think the MPCA should take into account when defining the term "essential for health, safety, or the functioning of society"? *(Please review the proposed definitions in the rule concept document prior to answering)*
Please see attached response.

Do you have any recommended changes or other considerations that you think the MPCA should take into account when defining the term "alternative"? *(Please review the proposed definitions in the rule concept document prior to answering)*
Please see attached response.

Do you have any recommended changes or other considerations that you think the MPCA should take into account when defining the term "reasonably available"? (*Please review the proposed definitions in the rule concept document prior to answering*)
Please see attached response.

When considering the proposed definition of “product category”, how broadly should the agency group product categories? *(Examples: “vehicles” versus “sedans, SUV’s, vans, trucks, RV’s” or "printers" versus "receipt printers, thermal printers, label printers, residential printers, commercial printers, etc.")*
Please see attached response.

Should each request for a CUU determination be limited to a single product category, or should applicants be allowed to submit a request for a CUU determination for multiple product categories?
Please see attached response.

What safety or other standards require the use of PFAS in a product? *(Please include the specific citation)*
Please see attached response.

The agency is seeking feedback on the potential that the initial positive CUU determination duration for existing products will expire eight years from the date of issuance regardless of product category. This is intended to stagger renewal deadlines and ease the administrative burden of processing renewals.

- Do you have any concerns about unintended consequences with this proposal?
- Do you have any alternative recommendations to stagger renewal deadlines?

Please see attached response.

The MPCA has developed a preliminary list of potentially eligible data categories that may be considered for trade secret requests. *(Please review the rule concept document for the list of potentially eligible data)*

- Do you have any concerns about unintended consequences with this proposal?
- Do you have any alternative recommendations for data that should or should not be eligible for trade secret requests?

Please see attached response.

What are the potential ongoing costs to society if the commissioner issues a positive currently unavoidable use determination for the continued use of PFAS within a product or product category? *(For example: environmental, human health, or remediation costs)*
Please see attached response.

For manufacturers: Administrative cost of requesting a CUU determination (Part 1 of 2). *Please provide your best estimates or rough orders of magnitude (for example "approx. 200 hours"). Precise accounting data is not necessary to answer this question.*

If your company currently possesses information regarding intentionally added PFAS (to the CAS number level) for all components in your product lines, please estimate the number of technical staff hours that were required to establish this baseline.

More than 500 hours

For manufacturers: Administrative cost of requesting a CUU determination (Part 2 of 2). *Please provide your best estimates or rough orders of magnitude (for example "approx. 200 hours"). Precise accounting data is not necessary to answer this question.*

If your company does not possess information regarding intentionally added PFAS (to the CAS number level) for all components in your product lines, please estimate the number of technical staff hours needed to obtain this data from your Tier 2 or 3 suppliers for a single product line.
More than 500 hours

For manufacturers: Expenditure considerations when seeking non-PFAS alternatives (Part 1 of 2). *Please provide your best estimates or rough orders of magnitude (for example "primary cost is CapEx"). Precise accounting data is not necessary to answer this question.*

If you have identified a technically viable non-PFAS alternative for one of your products that contains intentionally added PFAS, does implementing this alternative require Capital Expenditure (such as purchasing new molds, retooling machinery) or primarily Operational Expenditure (such as purchasing more expensive raw materials)?

- Please estimate the ratio of Capital Expenditure to Operational Expenditure (or indicate which category is the dominant cost driver).

Please see attached response.

For manufacturers: Expenditure considerations when seeking non-PFAS alternatives (Part 2 of 2).

If you have not identified a technically viable non-PFAS alternative for one of your products that contains intentionally added PFAS, have you conducted a Research & Development (R&D) feasibility study?

- If so, what was the cost of that study?

Please see attached response.

For manufacturers: Research and development safety validation cycles.

What is the typical duration of the R&D and safety validation cycle for a reformulated product in your sector (from concept to market entry)?

Does this cycle align with the 5-year renewal period typically associated with regulatory exemptions?

- If not, please explain the specific technical barriers that would require a longer validation period.

Please see attached response.

Do you have any additional questions or comments regarding the PFAS in products: Currently unavoidable use rule? *(Please note that we may be unable to respond to specific questions regarding rule content in this phase of the rulemaking process)*
Please see attached response.

Arnold & Porter

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March 27, 2026

Katrina Kessler, Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Re: PFAS in Products: Currently Unavoidable Use – Draft Rule Concepts

Dear Commissioner Kessler:

The Chemical Users Coalition ("CUC") is providing the enclosed comments on the draft rule concepts for the Minnesota Pollution Control Agency's planned new rule governing how the MPCA determines currently unavoidable uses of per- and polyfluoroalkyl substances in products.

CUC is an association of companies from diverse industries that are interested in chemical management policy from the perspective of those who use, rather than manufacture, chemical substances.[1] CUC encourages the development of chemical-regulatory policies that protect human health and the environment while simultaneously fostering the pursuit of technological innovation. Aligning these goals is particularly important in the context of chemical management policy in a global economy.

The CUC appreciates your consideration of these comments. If you have any questions relating to this submission, please feel free to contact us.

Sincerely,

Judah Prero and Lawrence Culleen

[1] The members of CUC are Airbus S.A.S., The Boeing Company, GE Vernova, HP Incorporated, IBM Company, Intel Corporation, Lockheed Martin Corporation, National Electrical Manufacturers Association, RTX, Sony Electronics Inc., and TDK U.S.A. Corporation.

Before the
Minnesota Pollution Control Agency
Request for Feedback
Draft Rule Concept Summary for PFAS in products:
Currently unavoidable use (CUU) rule
Revisor ID Number R-4837

Comments of the Chemical Users Coalition

The Chemical Users Coalition ("CUC") appreciates the opportunity to provide our response to the Minnesota Pollution Control Agency's (MPCA) Draft Rule Concept Summary for the PFAS in Products: Currently Unavoidable Use (CUU) Rule, published February 26, 2026.

These comments are submitted on behalf of the Chemical Users Coalition (CUC). CUC is an association of companies from diverse industries that are interested in chemical management policy from the perspective of those who use, rather than manufacture, chemical substances. CUC encourages the development of chemical regulatory policies that protect human health and the environment while simultaneously fostering the pursuit of technological innovation. Aligning these goals is particularly important in the context of chemical management policy in a global economy. CUC Members have been actively engaged with federal and state regulators on PFAS-related legislation and regulation, and CUC submitted comments to MPCA during its prior rulemakings implementing the reporting provisions of Amara's Law.

CUC OVERARCHING THEMES

CUC supports the goals of Amara's Law and recognizes the importance of reducing PFAS use where feasible alternatives exist. At the same time, CUC urges MPCA to ensure that the CUU rule is workable in practice and provides sufficient regulatory certainty for industries that depend on PFAS for safety-critical, long-lived, and technically complex products. Our responses address five overarching themes.

- **Key Definitions Must Be Clarified and Appropriately Scoped**

  The definitions of "essential for health, safety, or the functioning of society," "alternative." and "reasonably available" are the foundation of the CUU framework. As currently drafted, each requires refinement.

  "Essential for health, safety, or the functioning of society" should explicitly encompass uses and products required by federal or state law, products necessary for national security, defense, or space exploration, and products that support critical infrastructure

sectors including electricity generation, transmission, and distribution, climate mitigation, aerospace, aeronautics, public safety, and construction. The standard for demonstrating essentiality for health purposes should not require proof of a "significant increase in negative health outcomes" in all cases, as this threshold may exclude legitimate and important uses.

"Alternative" must account for more than nominal chemical substitution. A true alternative must be physically compatible with existing infrastructure, must replicate the aggregate multi-function performance of PFAS — not merely individual functions in isolation — and must not compromise product safety, reliability, or durability. Thus, an alternative substance which does not contain PFAS must be demonstrated to have technical and practical feasibility such that a chemical substitute will provide the same functionality under the same operating conditions as a PFAS for which it would substitute. The definition also must account for the lengthy qualification, certification, and customer approval processes required in sectors such as aerospace, defense, and electrical infrastructure before an alternative can be considered genuinely available as this can affect when an alternative is available as a practical matter for use in such applications.

"Reasonably available" should be assessed at an industry-wide level, not from the perspective of a single manufacturer's purchase volumes. If all manufacturers in a sector simultaneously transition to the same alternative, aggregate demand may far exceed current supply. Cost — including research, development, qualification, manufacturing, and lifecycle costs — should also be a relevant factor, as significant cost differentials can render an alternative inaccessible in practice. MPCA should additionally take account of EU derogations for specific PFAS uses, which reflect considered regulatory determinations that certain uses remain necessary. Finally, as noted above, whether an alternative is reasonably available as a practical matter can be affected by whether and when approvals and certifications necessary for deployment of an alternative can be obtained.

- **Product Categories Should Be Defined Broadly**

CUC strongly recommends that product categories be defined at the sector or functional use level rather than at the individual product or model level. Given that the definition of PFAS used in Amara's Law encompasses numerous substances and that supply chains are highly complex, narrow product-by-product determinations would impose disproportionate administrative burdens on both applicants and MPCA. Positive CUU determinations should apply to all manufacturers producing equivalent products in a category, not only to those named in the original request, to avoid a proliferation of duplicative applications for identical uses and the potential for inconsistent determinations on equivalent products.

CUC further notes that several states — including Maine, New Jersey, New Mexico, California, Kansas, and New York — have adopted or are actively considering categorical exclusions for non-consumer electronics and products used for the generation,

distribution, or storage of electricity. These exclusions reflect the substantially lower human exposure risk associated with sealed, closed-loop systems deployed in inaccessible locations with long asset lives. MPCA should consider a similar categorical approach for the electricity sector.

Moreover, CUC recommends MPCA undertake consideration of additional categorical exclusions, including those beyond non-consumer electronics, particularly for products to which direct exposures of the PFAS contents to users is not reasonably foreseen and/or in which the PFAS content is contained in a fixed form. Thus, by way of example, an exclusion for the internal components of a number of consumer use products (including those which are not specifically intended for the transmission of electrical current) should be considered. Such exclusions might include automotive parts containing fluoropolymers that are not directly in contact with the operator of the vehicle when in use (such as gaskets and engine parts and seals which perform important functions that depend on their resistance to heat and frictions).

- **Timelines and Renewal Periods Must Reflect Real-World Product Lifecycles**

The proposed January 1, 2030, CUU application submission deadline for existing products and the proposed 8-year initial determination duration (5 years for novel products) are misaligned with the realities of many affected industries.

In sectors such as electrical infrastructure, aerospace, defense, transportation and agricultural equipment, asset lives routinely extend from a decade to even 40 years or more. R&D and safety validation cycles typically require three to five years per product design and can extend to 10 to 20 years for a product family. Trial-use and adoption processes can add further years before scale procurement is possible. Moreover, compatible replacement parts for such products must remain available throughout their service lives. A CUU determination that expires in 8 years — or requires renewal every 5 years — does not provide sufficient certainty for long-term infrastructure planning or for the multi-year investment required to develop, validate, and commercialize alternatives.

CUC Members are concerned that MPCA may not fully appreciate the complexity of many products that are manufactured by CUC members and that are used in Minnesota. For many complex manufactured goods, there simply isn't the manpower to redesign every product and product component that has intentionally added PFAS. There are simply too many product and component types, and no guarantee of equivalent success in redesign. Furthermore, for many manufacturers, the cost of doing so would far outweigh the cost of not doing business within Minnesota. Therefore, CUU determinations would be required. This will result in a significant burden on industry covering all product categories in separate and distinct applications. In addition, it will be even more difficult for MPCA to process them in an accurate, objective and timely manner given the date limits in the current proposal.

CUC recommends that MPCA consider longer or indefinite renewal periods for sectors with demonstrably long asset lifecycles and validation cycles, that renewals be

streamlined with minimal information requirements, and that products for which a CUU application has been submitted be provisionally treated as approved until a final determination is issued. If a CUU determination is ultimately denied, a reasonable grace period should apply to enable existing stocks to move through commercial distribution before any complete sales prohibition takes effect.

- **Information Requirements Must Be Proportionate and Supply Chain Realities Acknowledged**

  Many product manufacturers are downstream in complex global supply chains and do not have direct access to detailed PFAS information from non-direct suppliers, who may be unwilling to disclose such information due to confidentiality concerns. The assessment of alternatives requirement, as currently drafted, implies a highly granular level of information that would be costly and time-consuming to compile — particularly in rapidly evolving sectors such as electricity infrastructure and semiconductors.

  CUC urges MPCA to calibrate the burden of proof to the "known or reasonably ascertainable" standard, to accept supplier statements as supporting documentation, and to establish a confidential direct-to-agency submission pathway for upstream suppliers. The agency should also provide clear written guidance on what constitutes sufficient due diligence to avoid uncertainty and inconsistent application of standards of sufficiency.

- **Initial CUU Determinations Should Be Made as Part of This Rulemaking**

  CUC strongly encourages MPCA to issue initial categorical CUU determinations as part of this rulemaking, rather than requiring every manufacturer to independently seek individual determinations for uses that are self-evidently essential. Specifically, CUC encourages MPCA to establish categorical exemptions for products required for national security, defense, and space exploration, and for products essential to critical infrastructure sectors. Additionally, MPCA should consider granting categorical exemptions for categories of products already excluded or under consideration for exclusion from similar PFAS in products bans in other jurisdictions. For example, numerous states have adopted or are actively considering categorical exclusions for, among other products, non-consumer electronics and products used for the generation, distribution, or storage of electricity. Numerous other such categorical exclusions have been adopted in those states.[1] This approach would allow the regulated community to focus compliance resources on areas where feasible alternatives genuinely exist — and would allow MPCA to focus its administrative resources accordingly.

  MPCA also should pursue coordination with other states to enable harmonized CUU submissions applicable across multiple jurisdictions, reducing duplicative burdens on both industry and regulators.

[1] Examples of categorical exemptions some states have adopted include (but are not limited to): used products, medical devices, veterinary products, motor vehicles, watercraft, semiconductors and semiconductor manufacturing equipment, non-consumer electronics and non-consumer laboratory equipment.

CUC RESPONSES TO SPECIFIC QUESTIONS

The MPCA asked that parties interested in the proposed rule provide responses to specific questions. The following are CUC's responses to those specific questions on which the MPCA requested input:

MPCA PFAS in Products: Currently Unavoidable Use (CUU) Rule
Consolidated Feedback Period Responses

Question 1. Who is commenting?

Representative of a product manufacturer(s) / industry group.

Question 2. Name of entity commenting on behalf of:

The Chemical Users Coalition (CUC), an association of companies from diverse industries that use, rather than manufacture, chemical substances. CUC members include Airbus S.A.S., The Boeing Company, GE Vernova, HP Incorporated, IBM Company, Intel Corporation, Lockheed Martin Corporation, the National Electrical Manufacturers Association, RTX, Sony Electronics, Inc., and TDK U.S.A. Corporation.

Question 3. Industry(ies) represented.

CUC represents companies across a broad range of industries including aerospace and defense, electronics and semiconductors, information technology, electrical manufacturing, consumer products, and critical electricity infrastructure (including transmission, distribution, and storage of electric power).

Question 4. Types of components, products, or product categories for which a CUU determination will be requested:

CUC member companies anticipate seeking CUU determinations for, among others:

- Products, supplies, and spare parts necessary for national security, defense, or space exploration, including aircraft, naval vessels, communication/radar systems, satellites, and space vehicles;
- Appliances and equipment used in harnessing clean energy (e.g., wind turbines, solar panels);
- Energy storage equipment, such as batteries and other components in electric vehicles and stationary devices;
- PFAS used in the production of semiconductors, circuit boards, and related electronic products and components, including PFAS used in the semiconductor manufacturing process and PFAS that may remain in final packaged semiconductor devices;

- Electronic equipment and devices that include semiconductors containing PFAS for purposes of ensuring reliability, limiting electronic interference, providing safety, and other critical performance attributes;
- Electrical equipment contributing to climate preservation, electrification, energy security, and product reliability (including electronic components in medical devices, electronic sensors, industrial automation equipment, gas-insulated power grid equipment, wiring insulation, and emergency lighting equipment).
- Critical electricity infrastructure components, including but not limited to: solar cells and wind turbine components, energy storage devices, and components. insulating coatings and lubricants; seals and gaskets that prevent leakage of oils and gases; insulating gases; nozzles; slide rings; rings, gaskets, and seals; deflectors; wire harnesses (insulation); current transformer windings; and spacers.

Question 5. Recommended changes or considerations for defining "essential for health, safety, or the functioning of society":

CUC appreciates the proposed definition and offers the following recommendations for strengthening it:

- National security, defense, and federal mandates. The definition should be expanded to clarify that products or uses required by federal or state laws and regulations, or that are necessary for purposes of national security, defense, or space exploration, are also considered "essential." These uses are often mandated by government specifications and obligations, and the definition should reflect this.
- Critical infrastructure sectors. CUC recommends that MPCA include explicit reference to the following categories as being "essential for the functioning of society": climate mitigation, critical infrastructure, delivery of medicine, lifesaving equipment, public transport, aerospace, aeronautics, public safety and defense, and construction. The critical role that many electricity infrastructure assets play means there is direct potential for impact on "safety, or the functioning of society" and for significant "disruption to the service provided" should PFAS-containing components become unavailable. This should be recognized explicitly in the definition.
- Flexible "essential for health" standard. CUC recommends that MPCA allow applicants to demonstrate that a PFAS use is "essential for health" without also needing to show that its absence would cause a "significant increase in negative health outcomes." This more flexible standard would accommodate innovative and unforeseen future uses that would otherwise be caught by the 2032 prohibition.
- Broadcasting and public information. MPCA should clarify what constitutes "basic needs of human beings" under the definition. CUC recommends that this be interpreted to include equipment used for broadcasting and communications purposes, given that such equipment enables the public to receive vital information. The loss of broadcasting infrastructure could significantly impair public access to emergency and other essential communications.

Question 6. Recommended changes or considerations for defining "alternative":

The proposed definition of "alternative" as a non-PFAS substance or process that results in a "functionally equivalent product" requires several important refinements:

- Physical size and compatibility constraints. Replacing some PFAS materials with currently existing — or envisioned — alternatives will in many cases require a redesign of the product resulting in a physically larger unit. This increase in size could prevent the new product from fitting within the same physical space or connecting to necessary existing infrastructure, thereby impeding the functionality of key utility and electrical systems. The definition of "alternative" must account for dimensional and spatial compatibility as a component of functional equivalence.

- Multi-function performance. PFAS substances frequently fulfill multiple functions simultaneously. While substitutes may exist for each individual function, in many cases a combination of substitutes does not replicate the aggregate performance of the PFAS being replaced. "Functionally equivalent" should therefore be interpreted to require that a substitute perform equivalently when deployed in the product — not merely that it replicates individual functions in isolation.

- No increase in chemical quantity. The definition should guard against situations where a non-PFAS alternative would require significantly greater quantities of a substitute chemical to achieve equivalent performance, which could introduce new human health or environmental concerns.

- Safety and durability. Alternatives must not compromise the safety, reliability, or durability of the product. The definition should explicitly incorporate reliability and durability as components of functional equivalence.

- Qualification burden. In sectors such as aerospace, defense, and electrical infrastructure, products and components must undergo extensive qualification testing, customer approvals, and Type Certifications by regulatory bodies such as the Department of Defense and Federal Aviation Administration. An alternative that is nominally available on the market may not be functionally equivalent in practice until it has completed these processes, which can take years.

- Regrettable substitution. Alternatives that are more flammable, toxic, or corrosive than the PFAS being replaced should not be deemed equivalent. MPCA should explicitly incorporate a comparative safety assessment into the definition to guard against regrettable substitutions.

- Quality of Life Standard. CUC recommends that MPCA also consider a consumer's quality of life standards when assessing "the functioning of society." Many consumer and professional use electronic devices and equipment are used to improve the quality of life by ensuring the ability to rapidly get in touch with or receive information from emergency responders, medical professionals, and government agencies and time

sensitive information (such as weather and earthquake alerts) beyond and in addition to providing access to forms of recreation and entertainment. Limiting or prohibiting the use of PFAS may disrupt consumers' quality of life by restricting access to devices and equipment that provide critical emergency information. It could also limit access to entertainment and communications platforms that support broader quality of life experiences.

Question 7. Recommended changes or considerations for defining "reasonably available":

While CUC acknowledges that the proposed definition focuses on comparable performance and quantity rather than cost, we offer the following recommendations:

- Supply quantity and market dynamics. The phrase "currently available in sufficient quantity" is inherently subjective and must be evaluated at an industry-wide level, not merely from the perspective of a single manufacturer's current purchase volumes. If all manufacturers in a sector are simultaneously required to transition to the same alternative material, aggregate demand could far exceed current supply capacity. The definition should account for this collective demand pressure and require a forward-looking assessment of whether adequate quantities can realistically be supplied across the industry.
- Cost as a feasibility factor. CUC recommends that cost not be entirely excluded from the "reasonably available" analysis. Significant cost differentials affect whether an alternative is genuinely accessible in practice, particularly for small and mid-size manufacturers. Moreover, if an alternative prohibitively increases the cost of a component in an end product to a consumer/user, this factor could have health consequences if the product or device is critical to the survival of the user (e.g., turn out gear to a fire fighter, a pacemaker to a heart patient). Relevant costs also must include acquiring and processing alternative substances; changes to manufacturing processes; research, development, and qualification expenses; and lifecycle costs for replacement and spare parts in long-lived products.
- Upstream supply chain impacts. MPCA should assess how the use of alternatives will affect the upstream supply chain all the way through to the end user. Resource constraints downstream could render an alternative unavailable in practical terms even if it nominally exists in the market.
- Chemical-of-concern lists. Alternatives listed on regulatory chemical-of-concern lists should not automatically be considered "reasonably available" without a comparative safety assessment.
- EU derogations. MPCA should take into consideration derogations approved by the European Union for specific PFAS uses, as these reflect considered determinations by a rigorous regulatory body that certain uses remain necessary. These precedents should inform MPCA's assessment of reasonable availability and provide benchmarks for exemptions or presumptive CUU determinations that MPCA should issue on its own initiative.

Question 8. How broadly should the agency group product categories?

CUC recommends that product categories be defined broadly, at the industry sector or functional use level rather than at the individual product or model level. The categories should be narrow enough to reflect real differences in use conditions, performance requirements, and alternatives, but broad enough to avoid unnecessary duplication. Given that the definition of PFAS used in Amara's Law encompasses numerous substances and that supply chains are highly complex, narrow product-by-product determinations would impose enormous administrative burdens on both applicants and MPCA.

A broader categorical approach — for example, "semiconductors and electronic components," "aerospace and defense equipment," "durable office equipment (e.g., copying machines and their component parts)", "medical imaging devices and component parts," "high-performance wire and cable insulation/jacketing," "high-reliability sealing components," or "products used for the generation, distribution, or storage of electricity," including replacements parts for the items in these categories, would allow MPCA to provide certainty across sectors and allow industry to address PFAS use systematically. Examples such as "headphones, printers, semiconductors, TVs, projectors" might illustrate appropriate levels of granularity for consumer electronics.

Question 9. Should each CUU request be limited to a single product category?

No. Applicants should be permitted to submit requests covering multiple product categories, particularly where those categories involve the same or similar PFAS uses, the same performance rationale, and the same alternatives landscape. This is especially relevant for sectors such as electricity infrastructure, where many products share similar technical requirements (e.g., electrical clearances and operating conditions) and therefore the same PFAS use cases.

Additionally, CUU determinations that receive a positive outcome should be made available to all manufacturers producing products in the same category — not just those listed on the original request. Limiting applicability to named manufacturers would result in numerous duplicative submissions for identical determinations, imposing unnecessary burden on both industry and MPCA as well as creating the potential for inconsistent determinations on the same products.

CUU determinations should be applicable at the product category level rather than the individual product level, further reducing administrative burden and duplicative CUU applications.

Question 10. Safety or other standards that require the use of PFAS in a product:

CUC members are subject to a wide range of federal and industry standards that drive PFAS use, including requirements from (for example) the Department of Defense, National Aeronautics and Space Administration, the Federal Aviation Administration, and various industry standards bodies in electronics, semiconductor manufacturing, and electrical infrastructure.

For example:

- SAE AS1241 - Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft;
- MIL-PRF-27617 - Grease;
- MIL-DTL-53039, MIL-PRF-22750, MIL-PRF-23377, MIL-PRF-85285 - Some coatings;
- Electrical Wiring Interconnect System AS50881 – Wiring, Aerospace Vehicle;
- NEMA WC 27500;
- SAE AS22759, AS6070, and AS81044;
- In semiconductor manufacturing, chemical and fire safety performance requirements for semiconductor equipment are specified in sector-specific standards such as SEMI S2 (Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment) and SEMI S14 (Safety Guideline for Fire Risk Assessment and Mitigation for Semiconductor Manufacturing Equipment) that specify thresholds and measurement techniques to ensure safety of employees and the protection of the manufacturing environment. Additionally, FM 4910 and UL 2360 are safety standards for plastics used in semiconductor cleanroom equipment, particularly wet benches, to minimize fire propagation and smoke damage.[2]

Question 11. Duration of initial positive CUU determination (8 years for existing products):

CUC appreciates MPCA's reasons for staggering renewal deadlines to reduce administrative burden. However, CUC believes that MPCA should not use the date of issuance of the CUU determination as the start date for the duration of the initial positive CUU determination. Instead, the duration should begin on the prohibition date (January 1, 2032). As the issuance dates are expected to vary across product categories resulting in different expiration dates, this would create unnecessary confusion, administrative complexity, and operational burden for companies and industries that manage multiple product categories.

In addition, CUC believes that 8 years is a short timeline given that asset lives in many sectors and industries can reach 40 years or more. For example, in the electrical sector, substation upgrades and construction plans are often initiated approximately 10 years prior to build-out. A CUU determination that expires in 8 years means that users may plan procurement around products that are no longer available by the time construction is complete, potentially triggering consecutive or new CUU applications and creating procurement uncertainty.

This challenge is compounded for replacement components. For example, high-voltage circuit breakers and similar assets are designed to last 40+ years. Periodic maintenance requires

[2] Note that while none of these standards explicitly require use of PFAS-containing materials, PFAS-containing materials are often used to meet the performance standards due to their unique combination of capabilities which included high chemical and temperature resistance, as well as low/no fire propagation potential.

replacement parts that may be stocked long after the core product ceases to be manufactured. An 8-year CUU duration does not reflect this reality. CUU determinations should also cover replacement parts and spare components over the entire product lifecycle.

It should also be noted that certain right-to-repair frameworks require that repair parts remain available for at least 7 years. A 5-year renewal period for novel products may therefore be insufficient to ensure continuity of legally required parts availability.

MPCA should consider longer renewal periods for sectors with demonstrably long asset lives and product validation cycles. CUC also recommends indefinite exemptions — subject to periodic review — for sectors where alternatives clearly do not exist and are not reasonably anticipated. Renewals should be streamlined with minimal information requirements and should not be treated as new submissions.

Question 12. Trade secret data categories:

CUC supports robust trade secret protections. Many manufacturers are downstream in the global supply chain and lack access to confidential upstream PFAS information. A direct-to-agency confidential submission pathway for upstream suppliers is essential to ensure applicants can substantiate their claims without requiring public disclosure of sensitive information. In the alternative, MPCA should accept supplier statements and communications as supporting documentation where direct disclosure is not feasible.

Question 13. Potential ongoing costs to society if a positive CUU determination is issued:

CUC acknowledges that there are human health and environmental costs associated with the continued use of PFAS. However, MPCA should weigh these against the costs of *not* issuing a CUU determination, including disruption of critical supply chains, loss of access to safety-critical products, increased risk from regrettable substitutions, resource diversion from production of essential goods, and product shortages that could harm the broader economy and public welfare.

For example, in the electricity supply sector, most switchgear applications are deployed in sealed, closed-loop systems with asset lives of 40 years or more. These assets are engineered to withstand environmental threats and require minimal maintenance and are located and designed to be inaccessible to the public. This combination of factors means the risk of human exposure or environmental release is substantially lower than for consumer-facing products. A positive CUU determination for such applications should therefore carry minimal environmental or human health cost, and MPCA's analysis should reflect this lower-risk profile.

The same is true for numerous products and equipment used throughout the transportation sector and in agricultural equipment. In both cases, complex internal components that might contain PFAS may be present in train engines and rail cars, airplanes and helicopters, tractors and combines, to name but a few examples. The lack of human exposure to the components, and the importance of PFAS in the continued functioning of such products and equipment argue in favor of weighing the benefits of establishing presumptive CUU determinations for such

categories as being greater than the environmental benefits to be gained by the painstaking task of compelling the submission of and the administrative and resource draining costs of considering countless CUU application that would be required if such categorical determinations are not issued presumptively by MPCA.

Questions 14 & 15. Administrative cost of requesting a CUU determination:

Response: More than 500 hours (estimated).

Given the number of product categories and PFAS use cases involved, establishing a baseline PFAS inventory to the CAS number level would be a significant undertaking across multiple product lines, involving several hundred or more hours of technical staff time. The precise burden will depend on the final form of the CUU arrangements, but significant financial and time costs are anticipated in either case. For complex manufacturers with multi-tier supply chains, obtaining this data from multiple levels of upstream suppliers presents additional challenges, as upstream suppliers may be reluctant to disclose detailed PFAS information. MPCA should clarify the required level of due diligence and the consequences of incomplete submissions, to allow applicants to assess the practicality of the requirements.

Question 16. Expenditure considerations — identified alternatives:

The cost of transitioning to non-PFAS alternatives is highly variable and depends on the nature of the alternative substance and where it is manufactured. New substances and alternative manufacturing methods often require extended periods of R&D and then testing before engineering approval and adoption can begin. This creates a dual-track burden on suppliers: continued manufacturing of proven technologies alongside investment in R&D, new materials expenditures, and new designs.

Existing supply chain constraints — particularly for semiconductors and other critical electrical components — compound this challenge. Changes to equipment design introduce additional complexity into already strained domestic and international supply chains, including exposure to trade and tariff impacts for components not available in the United States. These costs would ultimately be borne by consumers, exacerbating affordability concerns. Both significant capital expenditure (such as new molds, retooling machinery, new manufacturing equipment) and operational expenditure (more expensive raw materials, increased prototyping waste) should be anticipated.

Question 17. Expenditure considerations — R&D feasibility studies:

Where a technically viable alternative has been identified, validation of a new core component, which may include technical design tests required by industry standards, could easily represent an investment of millions of dollars per design. Where the same component is used in multiple product designs, testing must be repeated for each unique design. If the product contains multiple PFAS-containing materials, this testing may be required for each iteration depending on function. Following certification, the adoption curve must grow sufficiently to scale manufacturing, requiring further capital investment. Equally concerning can be the costs and

time associated with meeting technically demanding qualification standards that may have been established by existing product customers, which can include military, FAA, and NASA specifications.

Question 18. R&D and safety validation cycles:

R&D and safety validation cycles for products of relevance to CUC members substantially exceed the proposed 5-year renewal period for CUU determinations. For any given product type that has its own unique and intended design, research, design and validation cycles can easily take 10 years to complete. However, industrialization of an alternative design can take far longer in terms of getting actual complex goods made and out to customers. Furthermore, customers will use what they have (the old design) for its useful life before putting in newly designed (if even possible and certifiable) products for future use.

For example, R&D and safety validation cycles in the electrical infrastructure sector average three to five years per design and can extend to 10 to 20 years for a full product family. Beyond the manufacturer's own validation cycle, most transmission and distribution equipment users maintain their own validation process, including a trial use period. Depending on the product and scope of change, this trial use can take between one and five additional years before engineering approval and procurement can begin. Taken together, the full cycle from manufacturer R&D through utility adoption can easily span a decade or more, making a 5-year renewal period — applied to assets with multi-decadal lifespans — operationally problematic. MPCA should consider longer renewal periods or indefinite exemptions in sectors where validation cycles demonstrably exceed the renewal period.

Question 19. Additional supporting information:

CUC believes that MPCA should be aware of and benefit from the experience of other states and regulatory bodies when they encountered administrative and procedural difficulties when restricting certain substances. Some pertinent examples follow:

- For the transmission and distribution power delivery industry, both California and New York have published regulations providing a staged phase-out the gas SF6 – a single substance - over time. In a review following the initial phase-out date, users from both states reported the following:
    - Insufficient product lead times relative to exemption duration
    - Inadequate time to approve and validate alternatives for core product operation
    - Uncertainty about future regulation of currently approved alternatives
    - Longer-than-anticipated alternative product development timelines
    - Denial of exemptions leaving utilities with no viable options.
- Also, as an example, when EPA designated PIP (3:1) as a PBT, the Agency quickly took action to ban the manufacturing and use of PIP (3:1).
    - Industry feedback nearly immediately showed PIP (3:1) was deeply embedded in existing products, the supply chain, and replacement parts -- and many users had lacked visibility on its presence in a number of complex products and global supply chains.

    - EPA delayed compliance deadlines multiple times and later substantially recalibrated the regulatory approach to address implementation realities.
- The EU, under REACH, restricted the use of hexavalent chromium.
    - When placed on Annex XIV, companies/consortia had to apply for authorization. to continue use, causing a surge of applications ECHA could not process quickly.
    - Some authorizations continue to require renewals because viable alternatives are not available or need to be fully validated.
    - Consequently, ECHA is considering moving from authorizations to forms of restrictions.

These real-world outcomes from analogous regulatory processes are highly instructive for MPCA as it designs the CUU framework, and underscore the importance of realistic timelines, flexible renewal provisions, and process certainty for long-lived infrastructure assets.

Question 20. Additional questions or comments:

CUC raises the following additional concerns:

- Submission timeline. The proposed January 1, 2030, deadline for submitting CUU requests for existing products is too soon. Companies are still studying PFAS alternatives, and the available submission window provides insufficient lead time to identify and certify the acceptability of an alternative substance or product if a CUU determination is denied. CUC requests greater flexibility, including provisions that would not deem resubmissions as new submissions. CUC recommends the window for submitting CUU applications open January 1, 2030, and close one year later to provide for staggered submittals and their processing by the state.
- CUC also requests that MPCA treat CUU applications which have been submitted and determined to be administratively complete to also be considered provisionally approved until the review process is completed. This will avoid a situation where a product is effectively prohibited pending administrative processing of a pending CUU application.
- Grace period for denied determinations. If a CUU determination is not approved following review, a reasonable grace period should be provided before the prohibition takes effect, rather than an immediate sales ban. Given the volume of expected applications and the possibility that the review process may not be completed before January 1, 2032, this protection is important for both manufacturers and the supply chain.
- Information requirements and due diligence. For complex product manufacturers, there is a strong likelihood that full PFAS information — particularly from upstream suppliers — will not be readily available. While the "known or reasonably ascertainable" standard is appreciated, MPCA should provide further clarification as to the actual level of due diligence required and the consequences of incomplete submissions. Supplier statements should be an accepted form of documentation.
- Initial determinations. CUC strongly encourages MPCA to make some initial CUU determinations as part of this rulemaking. Products essential for health, safety, or the functioning of society — and those required for national security, defense, or space

exploration — should be granted categorical exemptions at the outset, allowing industry to focus compliance resources where feasible alternatives actually exist.

- Interstate coordination. MPCA should coordinate with other jurisdictions, including Maine and others currently developing similar rules, to enable manufacturers to submit CUU requests that apply across multiple states, reducing duplicative regulatory burdens. MPCA should also consider derogations approved by the European Union, which reflect rigorous determinations that certain PFAS uses remain necessary and should inform the Agency's own assessment of unavoidability.

Conclusion

CUC appreciates the opportunity to submit the foregoing comments and reserves the right to submit additional or modified comments at a later date. We would welcome the opportunity to meet with the MPCA staff to address our comments and to assist in crafting implementing rules.