James Amano

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?
SEMI

If you represent a product manufacturer or industry group, what industry(ies) do you represent?
Semiconductor manufacturing, semiconductor manufacturing equipment, and advanced electronics materials manufacturing

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)*
SEMI generally supports the agency's proposed definition and the intent to identify PFAS uses that are essential for health, safety, or the functioning of society. SEMI recommends, however, that the final definition explicitly recognize products, components, and materials that enable critical infrastructure and advanced manufacturing supply chains.

As drafted, the proposed framework may create an overly high or impractical bar for demonstrating essentiality, particularly for upstream products and materials. Under a narrow interpretation, Minnesotans could be deprived of products that are foundational to modern life, including medical devices, water filtration membranes, aircraft maintenance components, consumer electronics, household appliances, and information technology infrastructure. While these products may not independently meet each criterion in items A through C, their absence would disrupt essential downstream systems and services.

In the semiconductor sector, PFAS are often required for materials and products that support essential services such as data processing, communications, healthcare technologies, energy systems, transportation, and national security applications. SEMI recommends clarifying that "essential" includes upstream products and materials whose unavailability would disrupt the ability of downstream systems to function, even if the PFAS-containing product is not directly used by the end consumer.

Proposed Alternative Definition:

"Essential for health, safety, or the functioning of society" means a use of PFAS in a product or component where the function provided by the PFAS is, at the time of a determination by the commissioner, necessary for the product, component, or spare or replacement component to perform as intended. The unavailability of the PFAS for use would result in a substantial loss of product reliability, durability, or functionality, or cause the product's services to be unavailable, resulting in:

A. A significant increase in

negative health outcomes;
B. An inability to mitigate significant risks to human health or the environment; or
C. A significant disruption of commercial, public, or ecosystem services on which society relies or the ordinary functions of daily living, including:

1. Provision of food, water, shelter, health, hygiene, or other necessities for human survival;
2. Provision of transportation and utilities such as gas, electricity, data, communications, and sewer services;
3. Provision of personal, occupational, or public safety, particularly under extreme conditions of use; and
4. Other services necessary for the ordinary functions of daily living and the basic needs of residents of the state.”

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)*
SEMI recommends that the definition of “alternative” continue to focus on functional equivalence rather than mere chemical substitution. In semiconductor and electronics materials manufacturing, an alternative must meet stringent performance, safety, reliability, and purity requirements, as well as customer and industry qualification standards.

An alternative should not be considered viable unless it performs comparably under real-world operating conditions and can be implemented without compromising product integrity, safety, or downstream manufacturing processes.

SEMI recommends adopting the definition codified in Maine regulation (06-096 C.M.R. ch. 90, § 2):

“Functionally Equivalent” means a product or product component that functions in the same basic manner as the product it is being compared against to perform the same purpose to the same standard as the original PFAS-containing product or product component.

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*)
SEMI supports the agency’s focus on performance and availability rather than cost alone. Because performance considerations are addressed through the definition of “alternative” and the concept of functional equivalence, SEMI recommends that performance not be separately evaluated under the definition of “reasonably available.”

Instead, “reasonably available” should focus on whether an alternative can be accessed in sufficient quantity and at a cost that allows the resulting product to remain comparable to the PFAS-containing product. Cost differentials are relevant. For example, if the only suitable alternative requires the use of a substantially more expensive material, or if the price of a consumer or industrial product increases two- or three-fold to maintain required functionality, that cost differential should factor into whether the alternative is reasonably available.

SEMI further recommends clarifying that reasonable availability must account for the time required to research, qualify, and validate alternatives in complex manufacturing environments. In advanced materials sectors, alternatives may exist conceptually or at laboratory scale but may not be reasonably available for commercial use due to limited supply, lack of qualification, or incompatibility with existing manufacturing systems. Additionally, not all PFAS uses within components are under the control of the

company using those components.

Proposed Alternative Definition:

“Reasonably available” means that one or more alternatives to a PFAS for the specific application and condition of use being evaluated can perform comparably to the PFAS being considered for replacement and are currently available in sufficient quantity and at substantially the same cost. Alternatives already in use in equivalent products or components for identical applications may be considered reasonably available. Conditions of reasonable availability may change over time as a result of new research or innovation.

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.")*
SEMI recommends that product categories be defined broadly enough to reflect functional similarity rather than narrow design or formulation differences. Overly granular product categories could create unnecessary administrative burden without improving environmental outcomes. For semiconductor and electronics materials, grouping products by function and use context more accurately reflects how these products are developed, qualified, and deployed.

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?
SEMI recommends allowing applicants to submit a single CUU request covering multiple related product categories, provided the applicant can demonstrate functional similarity and comparable PFAS use across those categories. This approach would improve administrative efficiency for both applicants and MPCA while preserving the integrity of the CUU evaluation process.

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?

SEMI appreciates the agency’s proposal to establish a defined CUU duration for existing products but believes that an initial eight-year determination period is insufficient given the complexity of semiconductor manufacturing equipment and global supply chains.

SEMI recommends an initial CUU determination period of at least 12–15 years, which better aligns with the long research, development, qualification, and customer approval cycles typical in semiconductor and advanced materials manufacturing. Shorter durations could create repeated administrative burdens without meaningfully accelerating the

availability of viable alternatives.

SEMI supports renewable CUU determinations, provided renewal criteria remain clear and predictable.

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?

SEMI supports the agency's recognition that certain data categories may qualify for trade secret protection, particularly where disclosure could reveal sensitive formulation, supply chain, or process information. Trade secret protections must be sufficiently robust to encourage full and accurate submissions while allowing MPCA to obtain the information necessary to evaluate CUU requests. Clear guidance on how confidential information and public substitute data will be handled would be helpful.

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.
Other (please specify)

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 <u>does not</u> 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.
Other (please specify)

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.

In the semiconductor and advanced electronics materials sectors, research, development, and safety validation cycles for reformulated products frequently exceed five years. These timelines reflect the need for extensive testing, qualification, and customer approval to ensure performance, reliability, and safety under extreme operating conditions. SEMI recommends that the CUU framework recognize these extended timelines and allow sufficient flexibility to accommodate them.

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)*
SEMI appreciates MPCA's engagement with stakeholders during this early rule concept phase and encourages continued dialogue as the CUU framework is refined. Ongoing collaboration will be critical to ensuring that the final rule is science-based, administrable, and aligned with the realities of complex manufacturing supply chains.

To reduce administrative burden on both the agency and the regulated community, SEMI recommends that MPCA consider issuing initial categorical CUU exemptions for PFAS uses that are clearly essential, such as those related to national security, defense, critical infrastructure, and energy systems. MPCA should also consider granting categorical exemptions or exclusions for product categories that have been exempted, or are under consideration for exemption, in other states. This approach would avoid the need for individual manufacturers to submit duplicative applications and for the agency to review and rule on each one separately.

The following is a non-exhaustive list of products and product categories that MPCA should consider for initial categorical exemptions:

• Packaging for medical devices, drugs, or products used in medical settings regulated by the U.S. Food and Drug Administration;
• Veterinary products and components;
• Products for environmental or water quality testing;
• Motor vehicles subject to federal regulation;
• Other motor vehicles, including off-highway vehicles and farm equipment;
• Watercraft;
• Semiconductor devices and related manufacturing equipment, chemicals, and materials;
• Non-consumer electronics and laboratory equipment;
• Cooling, heating, ventilation, air conditioning, or refrigeration equipment subject to the U.S. EPA Significant New Alternatives Policy (SNAP) Program;
• Other products covered by the EPA SNAP Program;
• Products used for the generation, distribution, or storage of electricity;
• Products that contain fluoropolymers;
• Products required to meet national security standards of the U.S. Department of Defense,

Department of Transportation, Department of Homeland Security, Federal Aviation Administration, or National Aeronautics and Space Administration; and
• Equipment or compounds directly used for the manufacture or development of the listed products.
