

LANXESS Corporation

See attachment for comments.

Washington State Department of Ecology
Hazardous Waste and Toxics Reduction Program
PO Box 47600
Olympia, WA 98504-7600

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Submitted via email at: SaferProductsWA@ecy.wa.gov

LANXESS Corporation
Polymer Additives Business Unit

**RE: Draft Regulatory Determinations Report to the Legislature:
Safer Products for Washington - Implementation Phase 3 (November
2021, Publication 21-04-047)**

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LANXESS Corporation
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Dear Washington State Department of Ecology representative,

As solicited by the Washington Department of Ecology, LANXESS is commenting on the proposed regulations that would restrict the use of organohalogen flame retardants (OFRs) in the cases of electronic products found in the **Draft Regulatory Determinations Report to the Legislature: Safer Products for Washington - Implementation Phase 3**.

LANXESS has a technical center located in Kalama, Washington and a manufacturing location in Vancouver, Washington. We manufacture and distribute both halogenated FRs and non-halogenated FRs and are members of both the North American Flame Retardant Alliance (NAFRA) and the Phosphorus, Inorganic, and Nitrogen Flame Retardant Association (PINFA). Thus, I am presenting these comments on behalf of LANXESS.

Please find below my comments regarding the recommendations proposed in the draft report.

Lack of Risk Assessment

- The proposal does not incorporate risk in the traditional sense. In this regard, it is out of step with global regulatory processes.
- Because the proposal does not perform a traditional risk assessment, instead choosing what are declared as “safer” alternatives, the level of

- analysis completed by the Department of Ecology is inadequate to allow fully informed decisions regarding proposed restrictions.
- The lack of use of a customary risk assessment creates the following issues:
 - the draft report fails to recognize that there is minimal risk of flame retardants leaching from plastic housing in a manner that would impact human health or the environment;
 - the draft report does not consider that the risks associated with proposed alternative flame retardants leaching from the cases of electronic products could exceed the leaching amounts possible (even if minimal) from cases containing organohalogen flame retardants. Alternatives used could lead to increased exposure of flame retardants to humans and the environment; and
 - the proposal dismisses the notions that a given organohalogen flame retardant could indeed be the safest flame retardant in use and alternatives could represent regrettable substitution. The draft report attempts to define “safer” but ignores “safer in use”.

Chemical Alternatives

- As a manufacturer of both organohalogen and organophosphorus flame retardants, LANXESS is in a unique position to comment on the ease with which one chemical can replace another. In discussing this proposal with our applications group and other technical experts, it was highlighted that halogenated flame retardants are the only realistic flame retardant chemistry solution for certain types of plastics.
- It is concerning that defined alternative chemicals under regulatory scrutiny in different global regions could further narrow manufacturer flame retardant choices. For example, triphenyl phosphate (TPP) is a chemical sold by LANXESS that Washington State recommends as an alternative to organohalogen flame retardants. In some applications, TPP may indeed be a possible alternative to OFRs but in other applications, it may not be a viable or appropriate alternative. Concerning, however, is that the U.S. Environmental Protection Agency (EPA) is currently assessing for TPP.

While it is possible that EPA will not find reason to risk manage TPP, it is not known with certainty what actions EPA might recommend for the chemical. Consequently, Washington State could be recommending an alternative that will not be available for use as an alternative to OFRs, even if technical feasibility is achieved.

- Actions proposed by Washington State could cause problems with no solutions. Examples of possible problems include:
 - The alternative chemistry cannot be used for technical reasons.
 - The alternate chemistry is technically feasible but restricted because of federal risk management.
 - An alternate material such as a metal casing is not feasible for use due to electronic, durability, or weight parameters for the end use product.
 - The alternate plastic resin volumes necessitated by the restrictions will not be available to support a market shift in plastics consumption.

No Consideration for Other Important Aspects

- Though Washington State indicates that socioeconomic impacts for the regulation will eventually be assessed, recommending restrictions without some sort of analysis is premature. In its draft form, the socioeconomic impacts of the proposal have not been adequately assessed by Washington State in its report.
- The inability to move away from a restricted chemistry could lead to a lack of available products in Washington State.
- Green Screen is the tool used to assess the hazards associated with chemicals in the report to define “safer” alternatives. Green Screen is a hazard assessment comparison tool. It is not an alternative assessment tool. Past presentations of the Green Screen methodology by its authors have always been clear on this aspect regarding the limitations of the tool. There is a mnemonic associated with the 12 Principles of Green Chemistry.

- P – Prevent wastes
- R – Renewable materials
- O - Omit derivatization steps
- D – Degradable chemical products
- U – Use of safe synthetic methods
- C – Catalytic reagents
- T – Temperature, pressure ambient
- I – In-process monitoring
- V – Very few auxiliary substances
- E – E-factor, maximize feed in product
- L – Low toxicity of chemical products
- Y – Yes, it is safe

Green Screen appears to only address a few components of green chemistry, chiefly the “D – Degradable chemical products” and “L – low toxicity of chemical products”. It begs the question of how an adequate assessment could possibly be completed without the full consideration of so many other important aspects of chemical manufacture, use, and disposal being considered. This blatantly ignores factors such as recyclability of a plastic, an aspect often favoring OFRs.

Apparent Inconsistencies

- The draft report indicates that there are at least two organohalogen flame retardants that are classified as more preferred, scoring as Benchmark-2 using the Green Screen methodology (acceptable for use). However, the Department states that the two OFRs do not meet the minimum criteria for safer, because Ecology has created additional criteria for OFRs to be considered safer but does not apply that same additional criteria to identified alternatives. This is a confusing determination that is not fully explained within the Draft Report. Rather than indicating a class of chemical is restricted, it would be more useful for the final report to list chemicals preferred versus those not preferred using the same comparison criteria.

- Because the two “safer” OFRs are not presently used in electronic cases does not mean that they could not be used in the cases of electronic products, it simply means they have not traditionally been formulated for use in electronic casings. Does this mean if they were found to be useful in electronic casings that they would be allowed to be used or would they also be restricted based on the current criteria being used by the Department?
- The proposed restrictions, as worded, would ban OFRs that have yet to be invented, even if found to be “safer” by assessment methodology chosen by Washington State.

Lack of Robust Alternative Assessment

- The draft report utilizes promotional marketing literature in an effort to demonstrate that “safer” alternatives to organohalogen flame retardants are adequately available to replace OFR chemicals in the casings of electronic products. Promotional literature from companies or trade groups typically provides limited guidance and are intended to highlight potential uses for chemicals in an effort to promote trying those chemicals in new applications. Promotional literature does not guarantee that the promoted products will meet the specific requirements of a given application in the short-term and also meet the long-term requirements of the application. Realistically, only users and manufacturers of the plastics used to make the casings of electronic products are positioned to define what can be made to work in their own applications.

Finding Alternatives is Difficult and Time-consuming with no Guarantee of Success

- The recommendations in the report fail to recognize the significant difficulty and time requirements needed to locate possible alternatives to existing chemistries in commerce. Even if an alternative chemistry is identified, it can take years to define a working alternative system that meets all the flammability and plastic performance requirements for a specific product application. And it can take additional years beyond that to evaluate if a proposed alternative will continue to meet the performance

requirements of the end use product throughout its lifetime. This is especially true for the casings of electronic products that might be in use for 10, 20 or even 30+ years.

- In one example, our customer, a product formulator, had their own customer that was interested in moving from a brominated flame retardant to a phosphorus flame retardant (PFR) for a product due to market pressures. The formulator, of course, wanted to meet their customer's interests and invested in research to explore their request. Over the course of three years, our customer eventually found a plastic resin system utilizing a PFR that was able to meet the initial performance requirements for their customer. However, that was only the first half of the story. The second half involved the evaluation of the resin system containing a PFR for stability-in-use over time. Accelerated aging was performed and adjustments were made to the resin system in an attempt to meet the long-term stability requirements of the final product. After three additional years of testing and evaluation, our customer reported that the PFR based resin system was still not able to meet the field stability requirements and the research effort was discontinued.
- Even if a manufacturer is highly invested in finding an alternative flame retardant solution, it is not always possible for a desired outcome to be achieved.

I hope you find these comments informative and helpful.

Sincerely,



Stephen C. Scherrer
Director of Advocacy NORAM
LANXESS Corporation