December 31, 2024

**Submitted via email to SaferProductsWA@ecy.wa.gov**

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

**Re: Draft Identification of Priority Products Report to the Legislature, Safer Products for Washington, Cycle 2, Implementation Phase 2**

Dear Director Watson,

Flexsys thanks the Washington Department of Ecology ("the Department") for the opportunity to provide comments on the Draft Identification of Priority Products Report to the Legislature, which identifies consumer products for Cycle 2 of the Safer Products for Washington Law (Draft Report).[1] In March 2024, the Governor signed into law SB 5931, which directs the listing of 6PPD as a priority chemical and certain motorized vehicle tires containing 6PPD as priority consumer products under Safer Products for Washington law. SB 5931 specifies that the need for this action is to reduce sources and uses of 6PPD in Washington to protect aquatic life, particularly salmon.[2] Additionally, SB 2931 directs the Department to determine regulatory actions and adopt rules for 6PPD in tires and the Department has expressed that it plans to "take those actions during Cycle 2" of the Safer Products for Washington.[3]

Flexsys supports the decision by the Washington legislature to list 6PPD in tires as a Priority Product under the Safer Products for Washington law and the inclusion of 6PPD in tires in the Draft Report. We welcome the opportunity for continued engagement with the Department and other stakeholders to assess and identify replacement chemicals for 6PPD in tires.

[1] Draft Identification of Priority Products Report to the Legislature, Safer Products for Washington, Cycle 2 Implementation Phase 2, Publication 24-04-049, November 2024.
[2] An ACT Relating to addressing 6PPD in motorized vehicle tires through safer products for Washington; amending RCW 70A.350.010 and 70A.350.050; adding a new section to chapter 70A.350 RCW; and creating a new section, May 2024.
[3] Draft Identification of Priority Products Report to the Legislature, Safer Products for Washington, Cycle 2 Implementation Phase 2, Publication 24-04-049, page 29, November 2024.

## I. With over 50 years of expertise in developing material solutions to meet the safety and performance needs of the rubber tire industry, Flexsys is positioned to accelerate the development of a 6PPD replacement to meet environmental and tire safety criteria.

Flexsys is a privately held, U.S. owned company and the largest U.S. producer of critical tire additives, including vulcanizing agents, antidegradants (incl. 6PPD), and post-vulcanization stabilizers. Flexsys has expertise in developing innovative tire chemicals and is known throughout the tire industry for high-quality, innovative additives that prevent degradation and improve rubber performance. We manufacturer 6PPD, an antioxidant and antiozonant, that protects rubber compounds from cracking and degrading when exposed to oxygen, ozone, and temperature fluctuations. 6PPD is both a dynamic and static antidegradant, meaning it protects a rubber tire when it is flexed, or the rubber is stretched, and when it returns to its original shape. This protection enables tires to meet stringent performance and safety requirements.[4]

Developing a 6PPD replacement requires extensive expertise in rubber tire chemistry, resources, the ability to execute testing required to assess initial performance and safety, collaboration with tire manufacturers to conduct tire safety and performance testing, and collaboration with stakeholders to evaluate environmental characteristics. We have the required expertise, experience, and relationships to lead the development of innovative solutions and commercialization of a 6PPD replacement.

## II. Flexsys is actively working to develop innovative solutions for a 6PPD replacement.

We have invested in scientific research, education, innovation, and participatory community outreach, to speed the development of a viable 6PPD alternative. Through these investments we aim to design innovative solutions that match the critical performance and safety attributes of 6PPD in tires, but also adhere to stringent environmental standards. We continue to engage with stakeholders and researchers to test and identify potential 6PPD replacements. Through our partnership with the U.S. Department of Agricultural Research Service, via a Cooperative Research and Development Agreement (CRADA), we are exploring potential alternatives to 6PPD. We welcome the opportunity for continued collaboration with the Department of Ecology and other stakeholders to accelerate development of a 6PPD replacement.

## III. Flexsys welcomes the opportunity for continued dialogue with federal and state regulators to develop a balanced approach for the development, testing, and commercialization of a 6PPD replacement.

Development, testing, and commercialization of a 6PPD replacement for use in tires requires extensive investment in chemical research and development and will take time. To ensure tire safety and performance are not compromised, 6PPD alternatives must shield rubber

[4] https://democrats-naturalresources.house.gov/imo/media/doc/2021_07_15_Written_Testimony_Sarah%20Amick.pdf

compounds against ozone and oxygen attack over extended periods, integrate seamlessly with modern tire formulations, be effective at low doses, and contribute to industry decarbonization and sustainability goals, among other technical and commercial requirements. Failure to meet any of these objectives could lead to safety and/or performance issues, jeopardizing motorist safety or increasing waste. Rigorous testing is crucial, spanning diverse conditions and applications to confirm long-term safety and performance of tires. Additionally, once a viable alternative to 6PPD is identified, it will take several years to scale up manufacturing to produce an alternative that meets the demand of the global tire and rubber industry. A balanced approach is needed to complete the testing to ensure tire performance and motorist safety while protecting fish populations and the communities that rely on them.

**A. Flexsys supports the development of transparent hazard and environmental testing criteria to identify 6PPD alternatives.**

We thank the Department for developing transparent hazard criteria and guidance to define safer alternatives to 6PPD. Additionally, we acknowledge the proposal, issued by the California Department of Toxic Substances Control (DTSC), to list PPD derivatives on the Candidate Chemical List for the Safer Consumer Products Regulations (SCPR). While the addition of PPD derivatives to the SCPR, Candidate Chemicals List does not exclude these chemicals from consideration as an alternative to 6PPD, this action by DTSC signals the need for careful evaluation of potential tradeoffs in retaining a PPD derivative in tires.[5] We encourage the Department to consider hosting workshops with federal and state government partners to further define environmental test criteria.

**B. We encourage the Department to provide flexibility in using the 6PPD Alternatives Assessment Hazard Criteria.**

In October 2023, the Washington State Department of Ecology finalized the, "6PPD Alternatives Assessment Hazard Criteria," which provide a transparent standard for identifying safer alternatives to 6PPD in motor vehicle tires.[6] These criteria include three minimum criteria, applicable to all safer chemical alternatives identified through the Safer Products for Washington program, and three additional criteria that were developed specifically to identify alternatives to 6PPD. The minimum safer products criteria applicable to all Priority Products are described below:

- Potential alternative chemical has data on required hazard endpoints.

[5] California Environmental Protection Agency, Department of Toxic Substances Control, Technical Document for the Proposal to Add para-Phenylenediamine Derivatives to the Candidate Chemicals List (December 2023).

[6] Washington State Department of Ecology, 6PPD Alternatives Assessment Hazard Criteria, Publication 23-04-036 (October 2023).

- Data shows the chemical aligns with the GreenScreen® Benchmark 2 category or better. Carcinogens, mutagens, reproductive/developmental (CMR) toxicants and persistent, bioaccumulative, and toxic (PBT) chemicals will not pass this criterion.
- All known data will be used, even if it is outside of the required endpoints.[7]

The three additional criteria that the Department developed specifically to identify alternatives to 6PPD are described below:

- Alternatives must have data on acute aquatic toxicity to coho salmon and rainbow trout, as well as data on two other trophic levels.
- Alternatives must have data on the toxicity of transformation products after exposure to ozone.
- We will place a limit on the acute toxicity lethal concentration 50 (LC50) values allowed in the minimum criteria (>0.1 mg/L).[8]

The Department indicates in the 6PPD Alternatives Assessment Hazard Criteria that it will evaluate "special considerations" if none of the alternative chemicals they evaluate as part of the alternatives assessment meet the minimum criteria, as outlined above.[9] The Department also shared that its aim is "to find alternatives that are a lower hazard than 6PPD in our endpoints of concern."[10] We support the Department's goal and the opportunity for flexibility in the hazard criteria to enable identification of a 6PPD replacement.

**C. Flexsys recommends that the Department of Ecology consider a tiered approach for regulating 6PPD in tires, with an initial focus on passenger tires to speed identification and use of alternatives to 6PPD.**

As outlined in the U.S. Tire Manufacturers Association (USTMA) Preliminary (Stage 1) Alternatives Analysis Report Motor Vehicle Tires Containing N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD), finding a replacement for 6PPD in truck tires raises additional challenges over that of passenger and light truck tires.[11] The report specifies that: "Tires which are used for commercial purposes are designed to be retreaded, which is a process to replace the tread on the tire casing. A truck and bus radial tire body (also known as a casing or carcass) may be retreaded up to three times and may last up to a total of 750,000 miles. Because the life cycle of truck and bus radial tires is much longer than that of passenger or light truck tire, truck and bus radial tire rubber compounds typically contain higher levels of antiozonants/antioxidants (i.e.

[7] Id. at page 5.
[8] Id. at page 1.
[9] Id. at page 5
[10] Id. at page 5
[11] U.S. Tire Manufacturers Association (USTMA) Preliminary (Stage 1) Alternatives Analysis Report Motor Vehicle Tires Containing N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD), filed with the California Department of Toxic Substances Control on July 17, 2024.

6PPD)."[12] As a result, identifying a replacement in passenger and light truck tires and conducting the required performance and safety testing in these tires, may be able to be completed in a shorter time frame than that of truck and bus tires. We encourage the Department to consider opportunities for a tiered approach when assessing potential alternatives and their use in different tire types.

**D. Flexsys supports public/private coordination and funding to accelerate research and development of a 6PPD replacement.**

We remain committed to working with industry partners, stakeholders, and federal and state regulators to advance development of a replacement to 6PPD. Because of the challenges in designing a 6PPD replacement and the required testing needed to evaluate the hazard criteria, as outlined above, we support funding opportunities through public/private partnerships to provide funding for research and development of 6PPD alternatives. We welcome the opportunity for dialogue with federal and state policy makers on public/private funding and grant opportunities.

## IV. Conclusion

We look forward to our continued collaboration with the Department as it advances an alternatives assessment for 6PPD in tires under the Safer Products for Washington law. We welcome any questions and further discussion on this important topic. Please contact Neil Smith, ansmith@flexsys.com, with any questions.

Sincerely,

Neil Smith
Chief Technology and Sustainability Officer
Flexsys

[12] Id. at page 8.