August 5, 2021

The Honorable Katie Porter
Chair, Subcommittee on Oversight and Investigations
House Committee on Natural Resources
Washington, D.C. 20515

The Honorable Paul Gosar
Ranking Member, Subcommittee on Oversight and Investigations
House Committee on Natural Resources
Washington, D.C. 20515

**RE: Additional questions from Members following Oversight Hearing titled, "Are Toxic Chemicals From Tires And Playground Surfaces Killing Endangered Salmon?"**

Dear Chair Porter and Ranking Member Gosar:

Thank you for your letter dated July 26, 2021, containing additional questions submitted by members of the Committee for inclusion in the final hearing record. Per your request, and in accordance with Committee Rule 3(o), USTMA has provided answers below to each of the questions posed in the letter.

USTMA appreciates the opportunity to appear before your committee and looks forward to remaining actively engaged in this conversation.

**Questions from Chair Katie Porter for Ms. Sarah Amick, Vice President Environment, Health, Safety, and Sustainability and Senior Counsel, U.S. Tire Manufacturers Association**

1. **Please provide the amount USTMA and its members are spending on independent, peer reviewed research related to the environmental and health risks associated with 6PPD-quinone. Please provide the names of funded entities, amounts disbursed, and a brief description of each study currently underway.**

USTMA members recognize the need for additional research to fill data gaps related to 6PPD-quinone and to understand, validate, and confirm methodologies and conclusions in the recent study by Tian et al. (2020). USTMA is aware of current and planned research on 6PPD-quinone by two tire research organizations including the World Business Council for Sustainable Development (WBCSD) Tire Industry Project (TIP) and the Center for Tire Research (CenTiRe). In addition, USTMA shared an overview of important data gaps raised by Tian et al. with the chemical manufacturers of 6PPD through the PPD REACH Consortium in Europe. Below is an overview of current and planned research by the WBCSD TIP



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and CenTiRe, and an overview of the data gaps we shared with the 6PPD chemical manufacturers in response to the Tian et al. 2020 research.

**The WBCSD TIP** was formed in 2005 and operates under the umbrella of the World Business Council for Sustainable Development (WBCSD). TIP is a voluntary CEO-led initiative that brings together 11 leading tire companies, representing more than 60 percent of the world's tire manufacturing capacity. TIP aims to be a leading and trusted source of knowledge on the potential human and environmental impacts of tires through their lifecycle.

TIP works with a robust group of independent, expert, scientific advisors from global academic institutions through its Assurance Group. TIP Assurance Group members provide independent guidance and advice to ensure TIP projects maintain a high level of scientific integrity, quality, independence and accountability. The Assurance Group helps guide the TIP work plan, advises on study design and methodologies, and provides review of scientific papers and reports. The members of the Assurance Group and additional information can be found at https://www.wbcsd.org/Sector-Projects/Tire-Industry-Project/News/Tire-Industry-Project-appoints-new-Assurance-Group-to-guide-scientific-work.

Many of USTMA's members are also members of TIP; however, USTMA is not a member of TIP, nor does USTMA's membership fully overlap with TIP's membership. For those reasons, USTMA does not have information regarding individual amounts contributed to specific research topics or how TIP's research budget is shared amongst those research topics.

Nonetheless, USTMA is aware that studies involving potential human health and environmental impacts of tire and road wear particles (TRWP), as well as tire materials and chemicals (including 6PPD-quinone), are TIP priorities, accounting for an important share of TIP's annual operating-budget. Since 2005, TIP has supported significant research into the potential human health and environmental impacts of tires throughout their lifecycle. Identification of 6PPD-quinone prompted TIP to expand its research program (described below) to further scientific understanding of this newly identified transformation product.

As part of its current research plan, USTMA understands TIP is sponsoring the following studies:

- **TRWP aging study**, with Helmholtz Zentrum fur Umweltforschung (UFZ) (Leipzig, Germany):
    - The objective of this laboratory study is to develop methods to identify priority TRWP aging mechanisms and monitor the physical and chemical properties of TRWP and any chemicals that may be released during TRWP aging processes.
    - Following the publication of Tian *et al.* 2021, TIP requested that UFZ make specific analysis of any potential leaching of 6PPD-quinone, both before and after TRWP aging.
    - This study is due for completion early 2022 and is intended for publication in a peer reviewed journal.
- **TRWP ecotoxicology study**, with Ecotox Center (Switzerland), the Ecole Polytechnique Federale de Lausanne (EPFL) and the Swiss Federal Institute of Aquatic Science and Technology (EAWAG):
    - The objective of this study is to evaluate the potential bioavailability and potential toxicity of cryomilled tire tread (CMTT) (as a surrogate for the tire portion of TRWP) for fish and invertebrate species and evaluate the potential direct effects of the particles on organisms.

- CMTT from three different tire types was used to represent the basic characteristics of passenger car tires of different types, including winter and summer tires, as well as tires containing carbon black or amorphous silica as primary fillers.
- The methodologies used by Ecotox Center are:
  - In-vitro tests on high performance thin layer chromatography (HPTLC); and
  - ISO Standard 21115 (Water quality – Determination of acute toxicity of water samples and chemicals to a fish gill cell line, based on Rainbow Trout).
- Following the publication of Tian *et al.* 2021, TIP requested that Ecotox Center conduct an analysis of the potential bioavailability of 6PPD-quinone using a simulated fish digestive system and its potential for bioaccumulation in invertebrates. Additionally, bioassays using HPTLC will be performed.
- This study is due for completion early 2022 and is intended for publication in a peer reviewed journal.

Further, USTMA has been informed that TIP is pursuing the following follow-up studies, which TIP anticipates will be initiated by the end of 2021:

- An assessment of the amount of 6PPD and 6PPD-quinone leaching from tire treads that are representative in the United States (passenger, light and heavy truck, and bus tires),
- An evaluation of the hazard for fish of identified leachate based on in vitro cell line studies, and potential bioavailability along the food chain; and
- An update of the state of scientific knowledge of the chemical behavior of 6PPD, including:
  - Identification of all oxidation and ozonation products (including 6PPD-quinone); and
  - Determination of the half-lives of these products and their solubility in water, and how they are influenced by temperature, pH, and salinity.

**CenTiRe** is a consortium of tire and automotive industry members and two universities: the University of Akron and Virginia Tech.[1] CenTiRe conducts research in "materials, tire physics (including modeling), testing, manufacturing, and sustainability at the University of Akron and Virginia Tech that is of interest and directed by the industry members." Seven USTMA member companies are also members of CenTiRe: Bridgestone, Continental, Giti, Goodyear, Michelin, Pirelli, and Sumitomo. CenTiRe has requested research proposals to determine the amount of 6PPD-quinone released from tires into the environment. The findings from this research would answer questions such as: how much 6PPD-quinone is created from a single passenger / truck tire, how much 6PPD-quinone is in TRWP leachate, and how much remains in the crumb rubber at a tire's end-of-life. USTMA does not have information regarding the cost of this research as it is not being conducted by our organization.

**PPD REACH Consortium** is a consortium of chemical manufacturers that manufacture PPD chemicals including 6PPD.[2] USTMA, the European Tyre and Rubber Manufacturers Association (ETRMA), and TIP met with members of the consortium in April of this year to review relevant data gaps identified in the Tian et al. study and to seek their expertise in filling the data gaps. Based on their expertise in manufacturing 6PPD and potential alternatives, chemical manufacturers are best suited to respond to several data gaps and key questions including: are the effects of 6PPD-quinone present in other PPD

[1] https://centire.org/index.php/about-centire/about-centire

[2] https://www.reachcentrum.eu/consortium/ppd-reach-consortium-155.html

chemicals, does 6PPD-quinone impact human health, and how does 6PPD transform in the environment to 6PPD-quinone. To date, we have not received a response from the PPD REACH Consortium regarding its future research plans.

2. **Please provide the amount USTMA and its members are spending on identifying substitute chemicals or materials that would enable the removal of 6PPD from tires.**

USTMA and its members are committed to research to identify tire materials that ensure tire safety and performance and environmental protection. Additionally, USTMA and its members are committed to supporting an evaluation of 6PPD in tires under the California Safer Consumer Products Regulations (SCPR). The SCPR requires the product manufacturers to conduct the analysis to assess alternatives; the analysis is then reviewed by the California Department of Toxic Substances Control. The Alternatives Analysis process requires manufacturers to assess over 100 factors including: function and performance of the alternative to ensure tire safety; whether the alternative chemical poses any adverse air quality impacts; adverse ecological impacts; adverse water quality impacts; impacts on public health; waste and end-of-life disposal concerns; environmental fate concerns; materials resource consumption impacts; physical and chemical hazards; physical and chemical properties; and economic impacts.

It is difficult to quantify the amount of money USTMA's members will spend to identify alternatives under the SCPR. All tire manufacturers that sell tires in the state of California, including USTMA members, bear the cost of conducting the alternatives analysis. As USTMA members work to complete the alternatives analysis, we could provide updates to the committee on this process.

3. **Please describe the chemical and material alternatives to 6PPD currently being evaluated**

USTMA is actively working with the California Department of Toxic Substances Control to support the alternatives analysis of 6PPD in tires as expeditiously as possible. Other chemical compounds in the same family as 6PPD have been suggested as potential candidates, and other chemicals and materials are now being solicited for evaluation. Additional research is needed to understand whether alternatives to 6PPD have the potential to impact coho salmon. Research to understand alternatives and their performance and environmental impacts is needed to avoid regrettable substitutions, and alternatives to 6PPD must meet the following functions and have the following qualities to ensure tire safety and environmental protection:

- Continuously present at the surface of the tire to ensure protection of the rubber; compound from degradation due to oxygen and ozone;
- Good solubility and diffusivity in rubber compounds;
- Reactive with ozone but not too reactive in order to prevent premature depletion;
- No adverse effects on the rubber processing;
- Available in rubber compound over a tire's entire life cycle to ensure protection of the rubber;
- Low toxicity of the material and any transformation products; and
- No adverse effects on tire safety and performance.

4. **Ms. Amick, what is USTMA doing to characterize the health and environmental threat specifically from the many uses of used tires like asphalt, playgrounds and artificial playing fields?**

Scrap tires are one of the most recycled products in the United States, and USTMA and its members have a long-term sustainability vision that all scrap tires enter sustainable end use markets. The management of scrap tires to minimize waste has been a priority for USTMA members for almost three decades. USTMA works with stakeholders, including states, the U.S. EPA and the industry, to incentivize market development and advance federal and state regulations that foster sustainable scrap tire markets.

As part of USTMA's sustainability vision, we regularly monitor the scientific literature to maintain a current state of knowledge on the latest research regarding potential environmental or health impacts of scrap tire uses such as crumb rubber for artificial turf fields and playground surfaces. To date, more than 70 studies have been conducted globally and none have concluded that there is a health risk for children or adults who use the fields or playgrounds. New research on this topic is being conducted by both U.S. EPA and California Office of Environment Health Hazard Assessment (OEHHA), and USTMA has engaged with the agencies to support their crumb rubber evaluations and to answer questions regarding tires and tire materials.

The recent Tian et al. study has raised questions about the possibility of human exposure via contact with crumb rubber and playground surfacing materials. USTMA recognizes this is a potential data gap and is seeking engagement with other researchers to fill it.

5. **Ms. Amick, does the USTMA support using shredded tires to treat stormwater runoff in watersheds that drain to water bodies with known coho salmon populations?**

USTMA supports responsible uses for scrap tires taking into account all relevant human health and environmental factors. USTMA is encouraged by research conducted by Humboldt State University for CalRecycle[1,2] demonstrating that the use of tire derived aggregate in stormwater infiltration galleries is effective at reducing heavy metal loads and other contaminant levels in stormwater. However, USTMA has not taken a position on the utilization of this technology in any specific setting, including to treat stormwater runoff in watersheds that drain to water bodies with known coho salmon populations. Decisions about the use and implementation of stormwater technologies are made by state agencies. USTMA has supported Congressional efforts to invest in research regarding the use of tire derived aggregate in stormwater infiltration galleries.

6. **How much funding is the USTMA providing for bioretention and other approaches that filter runoff from roads, and who are the recipients of that funding?**

USTMA does not provide funding for bioretention and other approaches that filter runoff from roads as those stormwater management decisions are made by state and local governments. That said, USTMA does support federal legislation to advance the use of bioretention technologies to design highways with the future in mind. This includes USTMA's expressed support for the Rep. Gwen Moore (D-WI) amendment to the INVEST in America Act to establish five centers of excellence to conduct research on stormwater control infrastructure technology.

7. **What are the commercial implications for USTMA and its members in the event scrap tires can no longer be used for playgrounds or artificial playing surfaces?**

USTMA and its members are committed to continuous improvement of environmental stewardship and advancing circular markets for scrap tires. However, USTMA members have no direct commercial interest in scrap tires potentially used in playgrounds or artificial playing surfaces.

**Questions from Rep. Louie Gohmert for Ms. Sarah Amick, Vice President Environment, Health, Safety, and Sustainability and Senior Counsel, U.S. Tire Manufacturers Association**

**You spoke about how the tire manufacturing industry creates hundreds of thousands of jobs and billions of dollars in tax revenue.**

1. **How would your industry cope with a ban on 6PPD being used in tires?**

A ban on 6PPD may create increased tire performance, durability, and long-term safety concerns if alternative antioxidants and antiozonants do not perform as effectively as 6PPD. 6PPD is both a dynamic and a static antioxidant and antiozonant and is utilized by USTMA members because it is the most effective known protection material commercially available today. 6PPD reacts with oxygen and ozone in the air to minimize the opportunity for these agents to attack the tire and degrade the rubber compound. Without the use of high-performing protection materials like 6PPD, tire rubber compounds can crack and degrade rapidly, potentially leading to tire failures.

Safety is our number one priority. Almost 30 billion miles are traveled by Americans each year.[3] Tires enable mobility as they are the only part a vehicle that touch the road. Alternatives to 6PPD need to provide the same qualities and functionality that 6PPD provides to ensure tire safety and performance including:

- Continuously present at the surface of the tire to ensure protection of the rubber; compound from degradation due to oxygen and ozone;
- Good solubility and diffusivity in rubber compounds;
- Reactive with ozone but not too reactive in order to prevent premature depletion;
- No adverse effects on the rubber processing;
- Available in rubber compound over a tire's entire life cycle to ensure protection of the rubber;
- Low toxicity of the material and any transformation products; and
- No adverse effects on tire safety and performance.

If 6PPD is banned for use in tire manufacturing, and alternatives do not meet the needed qualities provided above, tire performance and durability will be jeopardized, creating the potential for tire failures. Additionally, USTMA expects a ban on 6PPD would increase the number of scrap tires that are generated each year, limit the safe movement of commerce across America, and impact the U.S. commercial trucking business in terms of tire durability and economic impacts on vehicle shipping.

USTMA and its members understand the need to act quickly to understand and validate the results of the Tian et al. 2020 study in order to prevent urban runoff mortality syndrome. This is why, as part of

[3] https://www.fhwa.dot.gov/policyinformation/travel_monitoring/20dectvt/

that effort, we support review of 6PPD in tires under the California Safer Consumer Products Regulations. This regulation provides an established, transparent, scientific framework to identify whether an alternative exists that ensures driver safety, tire performance, and environmental protection. We are committed to working as expeditiously as possible with the California Department of Toxic Substances Control to complete the alternatives analysis.

**2. Can you talk more about how the use of 6PPD in tires improves driver safety?**

All tires contain protection materials also known as antioxidants and antiozonants. 6PPD is both an antioxidant and antiozonant that protects tires during both dynamic (when the tire is flexing and in motion) and static conditions (for example, when the tire is in a warehouse). USTMA members use 6PPD because it is the most effective protection material commercially available today. 6PPD reacts with oxygen and ozone in the air to minimize the opportunity for these agents to attack the tire and helps to prevent heat break down of the tire. Without the use of high-performing protection materials like 6PPD, tires can crack and can degrade rapidly.

**Questions from Rep. Paul Gosar for Ms. Sarah Amick Vice President Environment, Health, Safety, and Sustainability and Senior Counsel, U.S. Tire Manufacturers Association**

1. **Given the questions raised by the findings of the Tian et. al study, can you describe the research the U.S. Tire Manufacturers Association (USTMA) is conducting to better understand 6PPD-Quinone and its effects?**

USTMA and its members take the findings of the Tian et al. 2020 study seriously. USTMA and the tire industry globally proactively responded to this study by accelerating our ongoing engagement with stakeholders including the scientific community and by outlining relevant data gaps and developing plans to fill those gaps. Three weeks after the study was released, we sent a letter to the California Department of Toxic Substances Control (DTSC) asking them to review 6PPD in tires under the state's green chemistry law (the Safer Consumer Products Regulations). In connection with these actions, USTMA respectfully submits the following information:

- **Engagement with researchers -** In 2019, USTMA learned that Dr. Jennifer McIntyre and her colleagues identified several chemical substances, including several materials used in tire manufacturing, that could be linked to coho salmon mortality. Upon learning of this research, USTMA proactively reached out to the Washington State Department of Ecology to support further research on tire materials, and we have continued to engage with Washington state researchers and regulators on this important issue. We welcome the opportunity to continue to engage with stakeholders like Dr. McIntyre as well as the Nisqually Indian Tribe.

- **Identification of relevant gaps and development of a plan to fill gaps -** The Tian et al. study raises additional questions, and USTMA supports further research on 6PPD-quinone to ensure next steps are science-driven.

  In response to the release of the study, the global tire industry formed a joint task force to identify relevant data gaps and develop plans to fill those gaps collaboratively.

- **Proactive outreach to the California Department of Toxic Substances Control to review 6PPD in tires under the Safer Consumer Products Regulations -** Just three weeks after the study was

published USTMA proactively asked that the California Department of Toxic Substances Control review 6PPD in tires to determine if a safer alternative exists

The California Safer Consumer Products Regulations provide a rigorous, transparent, scientific, regulatory framework to analyze whether alternatives exist that ensure tire safety and environmental protection.

DTSC accepted our request and included 6PPD in tires in its final 2021-2023 workplan.

2. **In your testimony, you highlighted USTMA request for the California Department of Toxic Substances Control (DTSC) to review 6PPD in tires under the California Safer Consumer Products Regulations. Can you describe the questions DTSC will require tire manufacturers to answer? Additionally, please provide the timeframe in which those answers will be provided to DTSC.**

USTMA sought DTSC's review of 6PPD in tires under the Safer Consumer Products Regulations (SCPR) because that regulatory framework offered the opportunity for USTMA members to complete an alternatives analysis on 6PPD in tires as expeditiously as possible under an established regulatory program. In December 2020, at the time the Tian et al. study was published, DTSC was already working on a draft SCPR 2021-2023 Priority Products Work Plan, and the timing of the study release aligned with DTSC's timing to issue a new three-year work plan or outline of chemical/product combinations the Department would evaluate under the SCPR over the next three years.

DTSC issues a Priority Product Work Plan every three years, which identifies the product categories DTSC will evaluate during the next three-year period. The Work Plan is essentially a menu of "Priority Products" that DTSC has prioritized for assessment under the regulations. DTSC selects product and chemical combinations from the Priority Products Work Plan to formally designate for review under the regulations. Once a chemical-product combination is formally designated as a priority product, following notice and comment rulemaking, the responsibility shifts to manufacturers to conduct an Alternatives Analysis requiring manufacturers and other responsible entities (such as importers and retailers) to seek safer alternatives to chemicals that may be potentially harmful. The SCPR asks manufacturers to answer two questions with respect to specific products that contain potentially harmful chemicals: 1) Is this chemical necessary? 2) Is there a safer alternative?

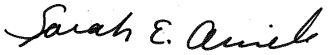
The SCPR Alternatives Analysis process is one of the most robust alternatives analysis processes across the globe, and requires manufacturers to assess over 100 factors including: function and performance of the alternative to ensure tire safety; whether the alternative chemical poses any adverse air quality impacts; adverse ecological impacts; adverse water quality impacts; impacts on public health; waste and end-of-life disposal concerns; environmental fate concerns; materials resource consumption impacts; physical and chemical hazards; physical and chemical properties; and economic impacts.

DTSC is currently working to designate 6PPD as a Priority Product. Within six (6) months after DTSC completes that designation, tire manufacturers will complete Stage 1 of the Alternatives Analysis which will include an initial evaluation of alternatives. Within six (6) months after DTSC reviews and approves Stage 1 of the Alternatives Analysis, tire manufacturers will complete Stage 2 of the Alternatives Analysis, building on Stage 1 through an evaluation of internal and external costs of the Priority Product and its alternatives and consideration of lifecycle impacts. DTSC will then review and approve Stage 2 of the Alternatives Analysis and issue a regulatory response which can include a range of actions or

requirements, such as material restrictions or controls, additional research requirements, notification requirements, or other required measures.

USTMA is committed to supporting the Alternatives Analysis for 6PPD under the SCPR and will work with DTSC to complete the analysis as expeditiously as possible.

Respectfully submitted,



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