OECD Workshop on Microplastics from Tyre Wear: Knowledge, Mitigation Measures, and Policy Options

Supported by the World Business Council for Sustainable Development

AGENDA

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Background

Scientists are gathering mounting evidence that microplastics (commonly defined as plastic particles whose diameter is below 5mm) are everywhere – from the remotest mountains and the deepest parts of the ocean, to our local rivers, drinking water, agricultural soil, food products, and the air we breathe.

Microplastics originating from tyres are estimated to be one of the largest contributors to microplastics pollution of aquatic environments. During road transport activity, the friction between the road surface and the tyres results in the abrasion of tyres (and of road surfaces) and in the emission of particles containing a mixture of tyre tread and road pavement material, which are generally referred to as Tyre and Road Wear Particles (TRWP). These may be washed off road surfaces by wind and rain events and enter marine and freshwaters, where they may be ingested by aquatic biota and transferred across steps of the food chain up to humans.[1] Further, certain end-of-life options for the disposal of old tyres may also contribute to microplastics pollution. In particular, tyre granulate used as infill material for artificial sports turfs and playgrounds is known to cause the leakage of tyre particles into the surrounding environment.

Microplastics unintentionally released during the use-phase of products (e.g. textiles, tyres, paints) are not currently targeted by the current policy framework on plastic waste and pollution. In this context, policymakers need tools and instruments that contribute to the effective mitigation of emissions TRWPs and other microplastics originating from tyres and to the management of microplastics in aquatic environments.

Aim and objectives of the workshop

The aim of the workshop is to collect state-of-the art knowledge on how TRWP affect water and aquatic ecosystems, and explore preliminary policy recommendations to mitigate and manage TRWPs in aquatic environments. The objective is to gather environmental policy makers, scientists, industrial representatives, water and wastewater utilities, IGOs and civil society to discuss tyres and microplastics, specifically addressing issues related to:

- The measurement of microplastics emitted from vehicle tyres, and their pathways into aquatic environments.
- The state of scientific knowledge on the environmental occurrence of TRWP, and their impacts on ecological and human health.
- Strategies to mitigate the emission of microplastics from tyres and to capture the emitted particles, including policy instruments and best practices applicable throughout the lifecycle of tyres.

[1] As a portion of tyre emissions are particulate matter (i.e., <10 µm), human beings are also exposed to tyre particles via inhalation.

- Options for the safe management of end-of-life tyres to prevent the leakage of tyre-based microplastics into the environment.
- Challenges to the implementation of mitigation measures for microplastics originating from tyres.

The workshop is designed to be interactive. Each session starts with a series of short presentations, followed by a moderated discussion on the themes raised.

The Workshop will be held under *Chatham House rules*, i.e. information disclosed during a meeting may be reported by those present, but the source of that information may not be explicitly or implicitly identified.

Expected outcomes of the workshop

At the end of the expert workshop, it is anticipated that participants will have:

- Obtained an improved understanding of TRWP pollution and an assessment of the risks posed to environmental and human health, with a focus on aquatic exposure pathways.
- Identified standardisation and research gaps in the field of TRWPs pollution (occurrence, pathways, sinks, and environmental and human health impacts).
- Discussed potential mitigation solutions to the problem across the tyre lifecycle: design, use, end-of-life management, and clean-up of tyre particles from wastewaters.
- Discussed preliminary policy recommendations and actions for central governments and other stakeholders to reduce the leakage of TRWPs into the environment, including regulatory, market-based and information-based policy tools as well as voluntary industry initiatives.
- Expanded their network of contacts in the fields of microplastics research, technology, industry, and policy development.

The outcomes of the workshop will inform an OECD report on policy responses to unintentionally released microplastics in the freshwater and marine environments, which will feature case studies and conclude with policy recommendations. This project is developed under the joint auspices of two OECD bodies – the Working Party on Biodiversity, Water and Ecosystems and the Working Party on Resource Productivity and Waste.

Background reading material

- Background note on microplastics, shared with registered participants in advance of the workshop.
- Country delegates to OECD working parties may wish to refer to OECD work on microplastics in freshwater and marine environments (documents ENV/EPOC/WPBWE(2019)10 and ENV/EPOC/WPRPW(2020)3).

Workshop Agenda

(Central European Summer Time)

18 May 2020	
12:30 – 13:00	*Log in via Zoom*
13:00 – 13:30	**OPENING REMARKS: AIMS, EXPECTATIONS AND STRUCTURE OF WORKSHOP** ○ **Dr. Rodolfo Lacy**, Director, OECD Environment Directorate ○ **Ms. Anne-Cécile Remont**, Director of Tyre Industry Project, World Business Council for Sustainable Development (WBCSD) and **Mr. Francis Peters**, Business at OECD *"Motivations of the tyre industry in the context of this workshop and missions of the WBCSD Tyre Industry Project"*
13:30 – 15:15	**1. SCIENTIFIC RATIONALE FOR MITIGATION ACTION ON MICROPLASTICS AND TYRE & ROAD WEAR PARTICLES (TRWP)** Moderator ○ **Prof. Richard Thompson**, OBE, Professor of Marine Biology and Director of Marine Institute, University of Plymouth **Part A: Microplastics from Tyre Wear in the environment** Some issues to be discussed are: ○ What is the extent of microplastics shedding from tyres? What are the pathways into the environment? ○ What do we know about the occurrence and distribution of Tyre and Road Wear Particles (TRWP) in the environment? ○ What is their overall contribution to microplastics pollution? ○ What are projected trends in the emission of TRWP in the future (e.g. impact of the larger uptake of electric vehicles)? ○ What are the specific challenges for detecting TRWPs in the environment compared to other microplastics? Presentation (12-15') ○ **Dr.-Ing. Stephan Wagner**, Researcher, Helmholtz-Centre for Environmental Research *"Tyre and Road Wear Particles: emissions, pathways, distribution and fate in the environment"* Q&A and Open Discussion (30')
	Short break (10')

	Part B: Ecological and human health effects of Tyre and Road Wear Particles (TRWP) and microplastics Some issues to be discussed are: ○ What are the ecological and human health risks associated with TRWP pollution? What factors influence these risks? ○ How do the effects of TRWP differ from those of other microplastics? ○ What is the significance of tyre leachate and tyre particles? Presentation (12-15') ○ **Dr. Farhan Khan**, Associate Professor, Roskilde University *"Ecological and Human Health Effects of Tyre and Road Wear Particles and Microplastic pollution in aquatic environments"* Q&A and Open Discussion (30')
15:15 – 15:30	*Concluding remarks for the day (5-15')*
	19 May 2020
12:30 – 13:00	*Logging in via Zoom*
13:00 – 15:00	**2. MITIGATION OPTIONS FOR TYRE AND ROAD WEAR PARTICLES (TRWP)** Moderator **Dr. Katherine Farrow**, Junior Environmental Economist, OECD Environment Directorate **Part A: Mitigation options implementable during the design phase** This session will discuss the potential of mitigation measures to reduce particle formation, with a focus on tyre design and road surface design. Some issues to be discussed during this session are: ○ What design and use parameters influence the emission of particles? ○ What are the trade-offs between resistance to abrasion and other desirable properties for producers (e.g. production costs) and consumers (e.g. safety)? ○ At the level of product design and manufacturing, what innovations are available (and in the pipeline) to mitigate the releases of TRWPs during driving activity? ○ What barriers exist to the widespread uptake of innovations in the design and manufacturing of tyres? ○ How could policies support the development of technological solutions?

	Presentation (10-12'): ○ **Dr. Mats Gustafsson**, Senior Researcher, Swedish National Road and Transport Research Institute (VTI) *"Factors influencing the emission of tyre wear particles"* Intervention (5'): ○ **Mr. Jean-Dominique Perrot**, European Tyre and Rim Technical Organisation *"Tyres and abrasion: a brief technical overview"* Q&A and facilitated discussion (30-40')
	Short Break (10')
	Part B: Mitigation options implementable during the use phase This session will discuss the potential of mitigation measures to reduce particle formation, with a focus on mitigation actions implementable during the use phase of tyres. Some issues to be discussed during this session are: ○ What are the best practices to optimise vehicle use to mitigate TRWP emissions? ○ What are best practices for road surface maintenance? What are the costs? ○ What could be the impact of policies aimed at reducing total vehicle kilometres travelled, e.g. through urban vehicle access regulations, car-pooling? Intervention (5'): ○ **Ms. Sarah Amick**, Vice President Environment, Health, Safety & Sustainability and Senior Counsel, US Tire Manufacturers Association *"Regional Considerations for the implementation of mitigation options for TRWP"* Discussion and open Q&A (30-40')
15:00 – 15:50	**3. MANAGING END-OF-LIFE TYRES: ENVIRONMENTAL AND HEALTH RISKS LINKED TO THE USE RUBBER GRANULATE** This session will discuss knowledge related to the potential environmental and human health impacts of the use of rubber granulate produced from tyres in sport turfs, and potential measures to limit the release of tyre microplastics into water streams. Moderator **Mr. Peter Börkey**, Principal Administrator, OECD Environment Directorate Intervention (8'): ○ **Mr. Daniele Fornai**, Executive Director, ECOPNEUS *"Eco-toxicological assessment and CLP Classification of rubber from End of Life Tyres"* Facilitated discussion (40')

15:50 – 16:00	*Concluding remarks for the day*
20 May	
12:30 – 13:00	*Logging in via Zoom*
13:00 – 14:15	**4. CAPTURE OF TYRE AND ROAD WEAR PARTICLES FROM WASTEWATER AND STORMWATER** This session will discuss options to mitigate TRWPs pollution of aquatic environments through improved wastewater treatment and management of stormwater and road runoff. Some of the issues to be discussed during this session are: ○ What is the effectiveness of wastewater treatment plants in retaining TRWPs and the associated chemicals? What is the relative cost of different wastewater treatment technologies? ○ What are the options for the management and treatment of road and highway runoff? ○ What are the options to prevent the transfer of microplastics to soil via wastewater and sludge reuse? What are the alternatives and trade-offs? ○ What is the potential of innovative solutions for the removal of microplastics from wastewaters and stormwaters? Moderator **Dr. Xavier Leflaive**, Principal Administrator, OECD Environment Keynote Presentation (12-15'): ○ **Dr. Christian Vogelsang**, Norwegian Institute for Water Research *"Capture of Tyre and Road Wear Particles from Stormwater and Wastewater"* Short interventions (5' each): ○ **Dr. Bertrand Vallet**, Policy Officer, EurEau ○ **Dr. Josiane Nikiema**, Senior Researcher, International Water Management Institute Q&A and Open Discussion (50')
14:15 – 14:25	*Short Break (10')*
14:25 – 16:05	**5. PRELIMINARY POLICY RECOMMENDATIONS TO TACKLE MICROPLASTICS POLLUTION FROM TYRES** Some of the issues to be discussed during this session include: ○ How strong is the evidence base for policy action? What would be the environmental and human health consequences of inaction? What are the consequences (economic, social and environmental) of business as usual?

	○ What are the future research needs and priorities? How do they feed into mitigation efforts and policy recommendations? ○ What are the key entry points to implement mitigation solutions for TRWPs pollution? ○ What are the most appropriate policy tools to prevent the leakage of TRWPs into the environment? What are the timeframes for implementation? ○ How should the external social costs of microplastics pollution be calculated? How should these costs be internalised? ○ What policy responses are currently being implemented to manage microplastic pollution? What lessons can be learned for policies to manage TRWPs? Moderator **Dr. Shardul Agrawala**, Head of Environment and Economy Integration Division, OECD Environment Directorate Presentations and interventions (7-10' each): ○ **Prof. Richard Thompson**, OBE, Professor of Marine Biology and Director of Marine Institute, University of Plymouth *"Research priorities to inform policy actions"* ○ **Ms. Fazilet Cinaralp**, Secretary General, European Tyre and Rubber Manufacturers Association *"Mitigation measures identified by the European TRWP Platform"* ○ **Dr. Anja Verschoor**, Consultant, De Milieutafel *"Selection of viable and effective measures to reduce environmental exposure to microplastics"* ○ **Ms. Sarah Amick**, Vice President Environment, Health, Safety & Sustainability and Senior Counsel, US Tire Manufacturers Association *"Available mitigation options and co-benefits considerations"* ○ **Ms. Paola Migliorini**, Deputy Head of Circular Economy and Green Growth Unit, Directorate General for Environment, European Commission Q&A and Open Discussion (40-50')
16:05 – 16:10	**CLOSING SESSION** Final remarks: Take-home messages from the OECD
16:10	*Workshop adjourns*