

ETRMA statement on Emissions of Particulate Matters to GRPE/GRBP

Brussels, 6 September 2019

The tyre industry has been and remains fully committed to the sustainability of products

The European Tyre and Rubber Manufacturer's Association (ETRMA) is aware that tyres are considered a source of pollution to both the atmospheric and aquatic environment. From the friction between roads and tyre surfaces particles are generated which are made of tyre tread material and material from the road. They are generally referred to as Tyre and Road Wear Particle (TRWP). TRWP are the subject of particular attention within the EU plastic strategy as they are commonly associated as unintentionally released microplastics.¹ As far as their contribution to atmospheric pollution is concerned, they have been the subject of discussions within the GRPE/PMP Informal Working Group for several years² as part of non-exhaust emissions from transport.

As a keen supporter of sustainable mobility, ETRMA is fully committed to building scientific knowledge on the generation and transportation of these particles, and working towards a holistic approach³ aimed at finding practical solutions for reducing emissions in the environment.

Tyres are necessary for keeping vehicles on the road to ensure safe mobility, given they are the only contact point between a vehicle and the road. Beyond this essential function, tyre design can contribute to reduce a vehicle's energy consumption and CO₂ emissions. It is the friction between the road and the tyre, which is indispensable for tyre functioning and road safety that also causes particles to be released from both the tyres and roads.

There are many different factors that affect the tyre tread abrasion rate (defined as the total amount of matter lost from the tyre tread due to interaction with the road per unit of distance). These factors are the following:

- **Tyre characteristics** (Size, tread depth, construction, tyre pressure and temperature, contact patch area, chemical composition, accumulated mileage);
- **Road surface characteristics** (material, roughness, wetness, pollutant, weather conditions) and road topology (hilly/windy vs plane/straight);
- **Driving behaviour characteristics** (sporty vs smooth driving, high vs moderate speed, respect of correct inflation pressure, braking, cornering);
- **Vehicle characteristics** (weight, distribution of load, location of driving wheels, suspension types).

External factors such as driving styles and road and vehicle characteristics can together have a bigger influence on the rate at which tyre and road wear particles (TRWP) are formed than tyre design alone. Therefore, ETRMA aims to ensure that any solution includes the engagement of all relevant parties and

¹ European Commission, "A European Strategy for Plastics in a Circular Economy" (2018) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A28%3AFIN>

² PMP 49th Session, Meeting Notes <https://wiki.unece.org/display/trans/PMP+49th+Session>

³ <https://www.tyreandroadwear.com/>

stakeholders, and is based on robust scientific evidence and serves the interest of consumers, the environment as well as industry.

ETRMA supports the building of robust scientific data to mitigate effects of PM emissions from tyre and road wear particles

With regards to the informal documents on non-exhaust PM emission from tyre and road wear and brakes, submitted by the Russian Federation to the GRPE 79th session in May 2019⁴ and to the GRBP 70th session in September 2019⁵, ETRMA wishes to continue dialogues on this topic. In this regard, the tyre industry envisages developing a robust and science-based approach to gather scientific knowledge on PM emissions from tyre and road wear and develop efficient mitigation solutions in the future. On due reflection on these documents, ETRMA wishes to put forward the following considerations:

- **Taking stock of currently available knowledge, methodologies and test conditions will be essential to build strong scientific results.** ETRMA notices that data from the Russian Federation, Japan and the UK (*Figure 3 in the Russian Federation's documents*) claim that that the contribution from tyre wear is roughly 2% of the total PM2.5 emissions. Nevertheless, this is one order of magnitude higher than the value reported in a recently published study "*Evaluation of Tire Wear Contribution to PM2.5 in Urban Environments*"⁶ by the World Business Council for Sustainable Development's (WBCSD) Tire Industry Project (TIP), which reports about 0.27% of an average contribution to total PM2.5 measured in urban areas. ETRMA proposes to take into account the fact, which is also widely recognised by emission experts, that significant uncertainties prevail regarding tyre wear contribution to PM10 and PM2.5. For instance, the Task Force on Emission Inventories and Projections (TFEIP) explains in their Guidebook 2016⁷ that experimental data from available literature do not provide a consistent picture on this topic. This is also confirmed by the Non-exhaust traffic emissions in the UK's National Atmospheric Emissions Inventory (NAEI)⁸, which is based on the mentioned Guidebook. In this regard, ETRMA encourages further discussions to better understand these discrepancies and possible reasons for diverging methodologies considering that these data will be of key importance to any regulatory initiative regarding airborne TRWP.
- **On the statement that TRWPs would have adverse effect because they contain dangerous PAHs.** ETRMA recognises that indeed polycyclic aromatic hydrocarbons (PAHs) have been measured in TRWP. At the same time, it is necessary to highlight that their source is mainly the road, which is also pointed out by *Table 1* in the Russian Federation's documents, based on a publication by Kreider et al, 2010. It is important to notice that provisions in *Entry 50 of Annex XVII* of the European Union Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), constitute an additional limiting factor for the presence of PAH from tyres. Moreover, further information would be welcome on the data source of the Russian Federation's statement that claims that TRWP would be carcinogenic because they contain PAHs. Considering that the inhalation test carried out by TIP did not indicate any adverse effect, additional knowledge on the bioavailability of the presence of carcinogenic substances within TRWPs would be necessary.
- **Further efforts will be needed to analyse the influence of mileage on the particle size distribution.** As recognised in the paper submitted by the Russian Federation, the tyre industry has been very active to find innovative and technically advanced solutions to increase the sustainability of its

⁴ <https://www.unece.org/fileadmin/DAM/trans/doc/2019/wp29grpe/GRPE-79-07e.pdf>

⁵ <https://www.unece.org/fileadmin/DAM/trans/doc/2019/wp29grb/GRBP-70-07e.pdf>

⁶ Evaluation of Tire Wear Contribution to PM2.5 in Urban Environments, Atmosphere 2019, <https://www.mdpi.com/2073-4433/10/2/99/htm>

⁷ EMEP/EEA air pollutant emission inventory guidebook 2016, European Environment Agency, <https://www.eea.europa.eu/publications/emep-eea-guidebook-2016/part-b-sectoral-guidance-chapters/1-energy/1-a-combustion/1-a-3-b-vi/view>

⁸ Non-exhaust traffic emissions in the UK's National Atmospheric Emissions Inventory, Ricardo Energy & Environment, <http://tfeip-secretariat.org/assets/Uploads/8-TFEIP-Non-exh-Presentation-DW-Ricardo-v1.pdf>

products and extend the average lifetime of tyres. It is, therefore, important to outline that knowledge about the relationship between abrasion rates and PM emissions is scarce and there is so far no evidence of the Russian Federation's claim that improving the wear life of tyres would shift the TRWP particle size distribution towards finer particles. As it is mentioned in the Russian Federation's paper, this is an opinion and data still have to be generated.

Next steps for a streamlined and efficient approach to address TRWP

- The tyre industry is proactively engaging on sustainability issues and aims to identify and address any potential human health and environmental impacts associated with tyres. Therefore, ETRMA remains committed to fill the knowledge gaps and develop practical solutions for reducing the levels of particles:
 - Several of ETRMA members are also members of the World Business Council for Sustainable Development's (WBCSD) Tire Industry Project (TIP). TIP brings together 11 leading tyre companies. TIP has announced further research on the presence and impacts of TRWP in different environmental issues (air, soil, river and lake sediments, estuaries and oceans).
 - ETRMA launched a dedicated multi-stakeholder roundtable, the TRWP Platform facilitated by CSR Europe⁹, in July 2018. With members from government, academia, NGOs and industry, the TRWP Platform creates an open and inclusive dialogue among relevant stakeholders to explore a balanced and holistic approach to the challenge of TRWP. The Platform aims to share scientific knowledge, achieve a common understanding of the possible effects of particles generated during normal tyre use and wear, and co-design mitigation options to reduce TRWP emissions.
 - The industry is also working on assessing the feasibility of a standard test method for measuring the tyre tread abrasion rate. The proposal for a feasible standard test method for measuring the tyre abrasion rate by the European Tyre and Rim Technical Organisation (ETRTO) is expected to be released in H2 of 2019.
- While recognising the high importance of this topic, **ETRMA does not believe that additional activity on this topic is needed within GRBP** with a view to maintaining the ongoing activities on this topic streamlined and avoiding any duplication of work, which may lead to confusion and decreased efficiency. Based on these considerations, ETRMA recalls the following:
 - It has been adopted by the 79th GRPE¹⁰ that PMP will monitor all the activities including those carried out by ETRTO on the development of an abrasion rate test method. Once a test method is available for abrasion, then PMP could investigate the relationship between tire wear PM emissions and their abrasion rate.
 - More particularly, participants took a clear stance in the revised terms of Reference of PMP: ***"In the meantime the EC has proposed in its European on the Move III initiative (Third Mobility Package) to develop a standard methodology to measure the abrasion rate of tyres in view of a possible future labelling scheme. This methodology will be developed through a process still under discussion but in any case without the direct involvement of the PMP. The group proposes to continue monitoring all information relevant to tyre/road wear particles and once the abrasion rate methodology is developed, to investigate the possibility of establishing a relationship between different abrasion rates and particle emissions."***
 - With regards to these positions taken in GRPE and PMP within the framework of UNECE, further analysis in GRBP on the same topic may lead to confusion on these activities in the future, therefore it is out of the scope of GRBP.

⁹ CSR Europe is the leading European business network for Corporate Social Responsibility

¹⁰ Terms of reference and rules of procedure for the Informal Working Group on the Particle Measurement Programme, <https://www.unece.org/fileadmin/DAM/trans/doc/2019/wp29grpe/GRPE-79-14r1e.pdf>