

Track 4. Chemistry and Exposure Assessment

Understanding the Ecological Effects and Rolling Out Solutions for Tire Road Wear Particles and Related Chemicals

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Tire and road wear particles (TRWPs) are generated during normal driving conditions and contain both rubber and roadway materials. These particles travel from the roadways and urban environments into surrounding ecosystems where there are deleterious impacts from both the TRWPs and chemicals that leach from the rubber and roadway micro and nano particles. Recent studies have demonstrated the widespread occurrence and toxicity of TRWPs and their associated chemicals (e.g. 6PPD, 6PPD-quinone, benzothiazoles, phthalate esters, polycyclic aromatic hydrocarbons, etc.) in both aquatic and terrestrial environments. Understanding the ecological impacts of this ubiquitous anthropogenic material necessitates an interdisciplinary approach to address the many knowledge gaps relating to the sources, transport, fate, toxicity, and reduction strategies of TRWPs and their associated chemicals. This session will focus on current studies seeking to fill some of these knowledge gaps. We invite presentations of field and lab-based studies focusing on tire wear particles and TRWPs, including research into the leachate and study of individual chemicals and their transformation products to understand the lethal and sublethal exposure effects, identification of tire-related compounds in the environment, research into 6PPD-alternatives, high resolution mass spectrometry investigation into new transformation products, and mitigation, regulation, and remediation strategies.