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Rubber — Framework for physical and chemical characterization of tyre and road wear particles (TRWP)

Caoutchouc — Lignes directrices pour la caractérisation physique et chimique des particules émises par l'usure des pneumatiques et de la route (TRWP)

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Foreword

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This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products.*

Introduction

This document is the second in a series that provides guidance pertaining to tyre and road wear particles (TRWP). The first document, ISO/TS 22638, specifies how to generate TRWP that are to be used for future analysis such as physical and chemical characterization. This document provides a framework of existing international standards to perform such analysis on TRWP.

TRWP are formed from the friction between a tyre and roadway surface. The particles are subsequently released into nearby soil and sediment ecosystems. As such, there is interest in studying the composition of TRWP in the environment (Kreider et al. 2010; Unice et al. 2015). Characteristics of TRWP are likely to differ from that of the manufactured tread due to the chemical and mechanical alterations during driving.

The document describes testing strategies and considerations for assessing the physical and chemical properties of interest in TRWP. Specifically, guidance is provided on how to qualitatively and quantitatively assess physical properties including morphology and particle size distribution, as well as determining the chemical characteristics such as general composition, metallic content, tyre element content and PAH content. Knowing the physical and chemical properties of TRWP can assist in future analysis regarding the environmental fate and toxicity of the particles.