



**International
Standard**

ISO 22638

**Rubber — Generation and
collection of tyre and road wear
particles (TRWP) — Road simulator
laboratory method**

*Caoutchouc — Génération et collecte des particules émises par
l'usure des pneumatiques et de la route (TRWP) — Méthode de
simulation routière en laboratoire*

**First edition
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Foreword

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

This first edition cancels and replaces the first edition (ISO/TS 22638:2018), which has been technically revised.

The main changes are as follows:

- an error in definition [3.3](#) has been corrected;
- the description in [4.1](#) has been corrected;
- a reference has been added to [4.2.1](#);
- a clarification about the collection system has been added to [4.5](#) and [5.3](#);

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Tyre and road wear particles (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 and effects of TRWP on the environment (see References [6] and [7]). This document provides guidelines for the generation of TRWP using a road simulator in a laboratory setting. The guidelines describe the method, apparatus and equipment, TRWP collection procedures, monitoring measures and test report. An informative case study is also provided.

Generation of TRWP with a road simulator eliminates interferences from other roadway surface contaminants such as brake dust, oil and grease, soil, and vegetation (see Reference [6]). This method allows for a more accurate characterization of the physical and chemical properties of TRWP than other generation methods including on-road collection and cryogenic breaking of rubber tread. In addition, a greater mass of TRWP can be collected using the road simulator laboratory method. Other laboratory generation methods (e.g. steel brush and grit paper) are not representative of actual driving conditions and may introduce additional interferences to the generated TRWP. Furthermore, previous analysis has shown that the particle morphology and size distribution of TRWP generated using on-road and road simulator methods are similar, with the on-road TRWP slightly smaller in size (see Reference [6]).

[Annex A](#) gives information on a case study of TRWP generation.

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