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Second edition
2021-08

Interior air of road vehicles —

Part 1:

Whole vehicle test chamber — Specification and method for the determination of volatile organic compounds in cabin interiors

Air intérieur des véhicules routiers —

Partie 1: Enceinte d'essai pour un véhicule complet — Spécification et méthode de détermination des composés organiques volatils dans les habitacles d'automobiles



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 6, *Indoor air*.

This second edition cancels and replaces the first edition (ISO 12219-1:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

- Adaption of temperatures, number of samples to be taken and the pre-conditioning and measuring times to be consistent with the UN mutual resolution concerning the common definitions of vehicle categories, masses and dimensions.

A list of all parts in the ISO 12219 series can be found on the ISO website.

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Introduction

Volatile organic compounds (VOCs) are widely used in industry and can be emitted by many everyday products and materials. They have attracted attention in recent years because of their impact on indoor air quality. After homes and workplaces, people spend a lot of time in their vehicles. It is important to determine the material emissions of interior parts and to reduce them to an acceptable level, if required. Therefore, it is necessary to obtain comprehensive and reliable information about the types of organic compounds in the interior air of vehicles and also their concentrations.

This document outlines a method of measuring the types and levels of VOCs in vehicle cabin air under controlled conditions. It describes requirements for a whole vehicle test chamber and a test protocol. Measurements are carried out according to ISO 16000-6 (VOCs) and ISO 16000-3 (carbonyl compounds).

There are several national test methods available for measuring in-vehicle air quality, e.g. References [2] [4]. However, this document requires a fixed heating radiation system whereas the methods of References [2][3] define a fixed temperature programme.

Before setting a fixed radiation density for heating the test vehicle, several validation measurements were performed (Reference [1]).

ISO 16000-3, ISO 16000-5,^[6] ISO 16000-6, ISO 16000-9,^[7] ISO 16000-10,^[8] ISO 16000-11,^[9] ISO 16000-24,^[10] ISO 16000-25,^[11] as well as ISO 16017-1 and ISO 16017-2^[12] also focus on volatile organic compound (VOC) measurements.