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Second edition
2019-10

Stationary source emissions — Determination of the mass concentration of carbon monoxide, carbon dioxide and oxygen in flue gas — Performance characteristics of automated measuring systems

*Émissions de sources fixes — Détermination de la concentration
de monoxyde de carbone, de dioxyde de carbone et d'oxygène —
Caractéristiques de fonctionnement et étalonnage de systèmes
automatiques de mesure*



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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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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This document was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 1, *Stationary source emissions*.

This second edition cancels and replaces the first edition (ISO 12039:2001), which has been technically revised. The main changes compared to the previous edition are as follows:

- The structure and the components are changed to be similar to the latest ISO standards; ISO 17179 (measurement of NH₃), ISO 13199 (measurement of total VOC), ISO 25140 (measurement of CH₄), ISO 21258 (measurement of N₂O) and others.
- Addition or deletion and change in terms and definitions.
- Addition of a new analytical technique (tunable laser spectroscopy) for in-situ measurement of CO, CO₂ and O₂
- The performance characteristics and criteria as well as QA/QC procedures are changed to harmonize with latest ISO standards.
- Examples of performance test results and the results of uncertainty calculation are shown for CO, CO₂ and O₂ measurement.

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.

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Introduction

Carbon monoxide, carbon dioxide, and oxygen are gases found in the exhaust gases of combustion processes. Determination of the concentration of these gases is necessary to demonstrate compliance with local regulations and can assist the operator in the optimization of the combustion process. The determination of O₂ and/or CO₂ is also necessary to normalize the measured concentration of other gases and dusts to defined conditions. There are a number of ways to measure concentrations of CO, CO₂ and O₂ in stacks/ducts.