BSI Standards Publication

Ambient air — Standard method for the measurement of the concentration of sulphur dioxide by ultraviolet fluorescence

bsi.

National foreword

This British Standard is the UK implementation of EN 14212:2024. It supersedes BS EN 14212:2012, which is withdrawn.

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Ambient air - Standard method for the measurement of the concentration of sulphur dioxide by ultraviolet fluorescence

Air ambiant - Méthode normalisée pour le mesurage de la concentration en dioxyde de soufre par fluorescence U.V.

Außenluft - Messverfahren zur Bestimmung der Konzentration von Schwefeldioxid mit Ultraviolett-Fluoreszenz

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European foreword

This document (EN 14212:2024) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2025, and conflicting national standards shall be withdrawn at the latest by June 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14212:2012.

The technical modifications in comparison with the previous edition are listed in Annex J of this document.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

1 Scope

This document specifies a continuous measurement method for the determination of the concentration of sulfur dioxide present in ambient air based on the ultraviolet fluorescence measuring principle. This document describes the performance characteristics and sets the relevant minimum criteria required to select an appropriate ultraviolet fluorescence analyser by means of type testing. It also includes the evaluation of the suitability of an analyser for use in a specific fixed site so as to meet the data quality requirements (see Annex I of Directive 2008/50/EC [1] for additional information) and requirements during sampling, calibration and quality assurance for use.

The method is applicable to the determination of the mass concentration of sulfur dioxide present in ambient air up to 1000 µg/m³. This concentration range represents the certification range for sulfur dioxide for type testing.

NOTE 1 It is possible to use other ranges depending on the levels present in ambient air.

NOTE 2 Exemplar uncertainty budget calculations are given in Annexes E to H referring to Directive 2008/50/EC [1]. In the event that the Limit Values are updated in future iterations of Directive 2008/50/EC [1], the user can use these new values to calculate measurement uncertainties.

The method covers the determination of ambient air concentrations of sulfur dioxide in zones classified as rural areas, urban-background areas, traffic-oriented locations and locations influenced by industrial sources.

The results are expressed in µg/m³ (at 20 °C and 101,3 kPa).

NOTE 3 1 000 µg/m³ of SO_2 corresponds to 376 nmol/mol of SO_2.

This document contains information for different groups of users.

Clause 5 to Clause 7 and Annex C and Annex D contain general information about the principles of sulfur dioxide measurement by ultraviolet fluorescence analyser and sampling equipment.

Clause 8 and Annex E are specifically directed towards test houses and laboratories that perform type testing of sulfur dioxide analysers. These sections contain information about:

— type testing conditions, test procedures and test requirements;

— analyser performance requirements;

— evaluation of the type testing results;

— evaluation of the associated uncertainty of the measurement performed by the sulfur dioxide analyser based on the type testing results.

Clause 9 to Clause 11 and Annex F, Annex G and Annex H are directed towards monitoring networks performing the practical measurements of sulfur dioxide in ambient air. These sections contain information about:

— initial installation of the analyser in the monitoring network and acceptance testing;

— ongoing quality assurance/quality control;

— calculation and reporting of measurement results;

— evaluation of the uncertainty of the measurement results under practical monitoring conditions.

This document represents an evolution of earlier editions (EN 14212:2005 and EN 14212:2012).