

Fourth edition
2023-07

Sampling airborne radioactive materials from the stacks and ducts of nuclear facilities

*Échantillonnage de substances radioactives en suspension dans l'air
dans les émissaires de rejet et les conduits des installations nucléaires*



Reference number
ISO 2889:2023(E)

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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 document 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 85, *Nuclear energy, nuclear technologies and radiological protection*, Subcommittee SC 2, *Radiological protection*.

This fourth edition cancels and replaces the third edition (ISO 2889:2021), of which it constitutes a minor revision.

The main changes are:

- clarification of the circumstances where numerical modelling may be used to perform or assist with meeting the qualifications for sample extraction locations;
- clarification of passages allowing the use of alternate aerosol particle sizes for the purpose of testing to meet various performance criteria described in this document;
- changes for the discussion of standard uncertainty with regard to setting action levels ([Annex I](#)).

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

This document focuses on monitoring the activity concentrations and activity releases of radioactive substances in air in stacks and ducts. Other situations for monitoring the activity concentrations and activity releases of radioactive substances in air (environmental or workplace monitoring) are being addressed in subsequent standards. This document provides performance-based criteria for the use of air-sampling equipment, including probes, transport lines, sample collectors, sample monitoring instruments and gas flow measuring methods. This document also provides information covering sampling programme objectives, quality assurance, development of air monitoring control action levels, system optimization and system performance verification.

ISO 2889 was first published in 1975 as a guide to sampling airborne radioactive materials in the ducts, stacks, and working environments of installations where work with radioactive materials is conducted. Since then, an improved technical basis has been developed for each of the major sampling specialities. The focus of this document is on the sampling of airborne radioactive materials in ducts and stacks.

The goal of achieving an unbiased, representative sample is best accomplished where samples are extracted from airstreams in which potential airborne contaminants are well mixed in the airstream. This document sets forth performance criteria and recommendations to assist in obtaining valid measurements of the concentration of airborne radioactive materials in ducts or stacks.