INTERNATIONAL STANDARD

ISO 2889

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

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

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 2889 was prepared by Technical Committee ISO/TC 85, *Nuclear energy*, Subcommittee SC 2, *Radiation protection*.

This second edition cancels and replaces the first edition (ISO 2889:1975), which has been technically revised.

Introduction

This International Standard 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 International Standard 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 International Standard 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 International Standard 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 International Standard sets forth performance criteria and recommendations to assist in obtaining valid measurements of the concentration of airborne radioactive materials in ducts or stacks.

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

1 Scope

This International Standard sets forth performance-based criteria and recommendations for the design and use of systems for sampling of airborne radioactive materials in the effluent air from the ducts and stacks of nuclear facilities.

The requirements and recommendations of this International Standard are aimed at sampling that is conducted for regulatory compliance and system control. If existing air-sampling systems are not designed to the performance requirements and recommendations of this International Standard, an evaluation of the performance of the system is advised. If deficiencies are discovered, a determination of whether or not a retrofit is needed and practicable is recommended.

It can be impossible to meet the requirements of this International Standard in all conditions with a sampling system designed for normal operations only. Under off-normal conditions, the criteria or recommendations of this International Standard still apply; however, for accident conditions, special or separate accident air sampling systems can be necessary.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 10780:1994, *Stationary source emissions — Measurement of velocity and volume flowrate of gas streams in ducts*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
abatement equipment
apparatus used to reduce contaminant concentration in the airflow exhausted through a stack or duct

3.2
absorbent
material that takes up a constituent through the action of diffusion, allowing the constituent to penetrate into the structure of the absorbent (if a solid) or dissolve in it (if a liquid)

NOTE When a chemical reaction takes place during absorption, the process is called chemisorption.

3.3
accident (conditions)
upset conditions that can lead to the release of abnormal amounts of radionuclides