ISO 11665-9:2019 (E)

Measurement of radioactivity in the environment — Air: Radon-222 — Part 9: Test methods for exhalation rate of building materials

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms, definitions and symbols

3.1 Terms and definitions
3.2 Symbols

4 Principle

5 Reagents and equipment

5.1 Reagents
5.2 Equipment for sample preparation
5.3 Equipment for procedure
5.4 Test bench

6 Building material test sample preparation

6.1 General
6.2 Number and dimensions
6.2.1 General
6.2.2 End product
6.2.3 Fluid intermediate materials
6.3 Conditioning
6.3.1 End products
6.3.2 Fluid intermediate materials

7 Measurement

7.1 General
7.2 Set up of test bench
7.2.1 Choice of volume flow rate
7.2.2 Determination of amount of adsorbent material
7.2.3 Determination of minimum desorption duration
7.2.4 LSC procedure
7.2.4.1 General
7.2.4.2 Determination of calibration factor
7.3 Measurement procedure

8 Expression of results

8.1 General
8.2 Free exhalation rate
8.3 Standard uncertainty
8.4 Decision threshold
8.5 Detection limit

9 Test report

Annex A (informative) Method for determination of free radon exhalation rate of mineral-based building materials — Total count determination using gamma-ray spectrometry

A.1 General

A.2 Principle
A.3 Reagents and equipment
A.3.1 Reagents
A.3.2 Equipment
A.3.3 Test bench
A.4 Test procedure
A.4.1 Set-up of test bench
A.4.2 Gamma-ray spectrometer procedure
A.4.3 Measurement procedures
A.5 Expression of results
A.5.1 Free exhalation rate
A.5.2 Decision threshold
A.5.3 Detection limit

Annex B (informative) Method for determination of free radon exhalation rate of mineral-based building materials — Determination by nuclide-specific gamma-ray spectrometry

B.1 General
B.2 Principle
B.3 Reagents and equipment
B.3.1 Chemicals
B.3.2 Equipment
B.3.3 Test bench
B.4 Test procedure
B.4.1 Set-up of the test bench
B.4.2 Gamma-ray spectrometer procedure
B.4.3 Measurement procedure
B.5 Expression of results
B.5.1 Free exhalation rate
B.5.2 Decision threshold
B.5.3 Detection limit

Annex C (informative) Performance characteristics

Page count: 39