ISO 13161:2020 (E)

Water quality — Polonium 210 — Test method using alpha spectrometry

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms, definitions, symbols and abbreviated terms

3.1 Terms and definitions
3.2 Symbols and abbreviated terms

4 Principle

4.1 General
4.2 Treatment
4.2.1 Treatment for a deposition on a disc
4.2.2 Treatment for a precipitation on a filter
4.3 Principle of alpha spectrometry

5 Reagents and equipment

5.1 Reagents
5.2 Equipment
5.3 Alpha spectrometry measuring equipment

6 Sampling and samples

7 Chemical treatment and deposit process

7.1 General
7.2 Chemical treatment
7.2.1 Autodeposition of polonium on a disc
7.2.1.1 Treatment
7.2.1.2 Disc cleaning
7.2.1.3 Deposition phase
7.2.2 Microprecipitation on a filter
7.2.2.1 Coprecipitation of polonium sulfide with copper sulfide
7.2.2.2 Filtration step

8 Measurement by alpha spectrometry

8.1 General
8.2 Quality control
8.3 Measurement

9 Expression of results

9.1 General
9.2 Total yield
9.3 Activity concentration of 210Po in the sample
9.4 Combined uncertainties
9.5 Decision threshold
9.6 Detection limit
9.7 Limits of the coverage interval
9.7.1 Limits of the probabilistically symmetric coverage interval
9.7.2 The shortest coverage interval

10 Test report

Annex A (informative) Cell deposit examples

Annex B (informative) Spectrum examples

Page count: 19