DIN EN ISO 13161:2024-10 (E)

Water quality - Polonium 210 - Test method using alpha spectrometry (ISO 13161:2020)

Contents

Page

European foreword ... **3**

Foreword ... **4**

Introduction ... **5**

1 Scope ... **7**

2 Normative references ... **7**

3 Terms, definitions, symbols and abbreviated terms ... **8**
3.1 Terms and definitions ... 8
3.2 Symbols and abbreviated terms ... 8

4 Principle ... **9**
4.1 General ... 9
4.2 Treatment ... 10
4.2.1 Treatment for a deposition on a disc ... 10
4.2.2 Treatment for a precipitation on a filter ... 10
4.3 Principle of alpha spectrometry ... 11

5 Reagents and equipment ... **11**
5.1 Reagents ... 11
5.2 Equipment ... 12
5.3 Alpha spectrometry measuring equipment ... 12

6 Sampling and samples ... **12**

7 Chemical treatment and deposit process ... **13**
7.1 General ... 13
7.2 Chemical treatment ... 13
7.2.1 Autodeposition of polonium on a disc ... 13
7.2.2 Microprecipitation on a filter ... 14

8 Measurement by alpha spectrometry ... **15**
8.1 General ... 15
8.2 Quality control ... 15
8.3 Measurement ... 15

9 Expression of results ... **15**
9.1 General ... 15
9.2 Total yield ... 16
9.3 Activity concentration of ^{210}Po in the sample ... 16
9.4 Combined uncertainties ... 17
9.5 Decision threshold ... 17
9.6 Detection limit ... 17
9.7 Limits of the coverage interval ... 18
9.7.1 Limits of the probabilistically symmetric coverage interval ... 18
9.7.2 The shortest coverage interval ... 18

10 Test report ... **19**

Annex A (informative) **Cell deposit examples** ... **20**

Annex B (informative) **Spectrum examples** ... **22**

Bibliography ... **24**