

# ISO 13165-3:2016-03 (E)

## Water quality - Radium-226 - Part 3: Test method using coprecipitation and gamma-spectrometry

---

| <b>Contents</b>   |   | <b>Page</b> |
|---|---|-------------|
| Foreword .....  |   | iv          |
| Introduction .....                                      |   | v           |
| 1   | Scope .....   | 1           |
| 2   | Normative references .....  | 1           |
| 3   | Terms and definitions .....   | 1           |
| 4   | Symbols .....   | 2           |
| 5   | Principle of the measurement .....  | 3           |
| 6   | Reagents and equipment .....  | 3           |
| 6.1   | Reagents .....  | 3           |
| 6.2   | Equipment .....   | 4           |
| 7   | Sampling .....  | 4           |
| 7.1   | Sample collection .....   | 4           |
| 7.2   | Sample transport and storage .....  | 4           |
| 8   | Procedures .....  | 4           |
| 8.1   | Blank sample preparation .....  | 4           |
| 8.2   | Sample preparation .....  | 5           |
| 8.3   | Counting procedure .....  | 5           |
| 9   | Quality assurance and quality control programme .....                       | 5           |
| 9.1   | General .....   | 5           |
| 9.2   | Influence quantities .....  | 6           |
| 9.3   | Instrument verification .....   | 6           |
| 9.4   | Method verification .....   | 6           |
| 9.5   | Demonstration of analyst capability .....                                   | 6           |
| 10  | Expression of results .....   | 6           |
| 10.1  | General .....   | 6           |
| 10.2  | Water-soluble <sup>226</sup> Ra activity concentration .....                | 7           |
| 10.3  | Standard uncertainty of activity concentration .....                        | 7           |
| 10.4  | Decision threshold .....  | 7           |
| 10.5  | Detection limit .....   | 7           |
| 10.6  | Limits of the confidence interval .....                                     | 8           |
| 10.7  | Corrections for contributions from other radionuclides and background ..... | 8           |
| 10.7.1  | General .....   | 8           |
| 10.7.2  | Contribution from other radionuclides .....                                 | 9           |
| 10.7.3  | Contribution from background .....  | 10          |
| 11  | Expression of results .....   | 10          |
| Annex A (informative) Uranium and its decay chain ..... |   | 12          |
| Bibliography .....                                      |   | 14          |