

ISO 4721:2024-12 (E)

Water quality - Strontium 90 - Test method using ICP-MS

Contents	Page
Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
4 Symbols.....	2
5 Principle.....	3
6 Sampling and sample storage.....	5
7 Chemical reagents and equipment.....	5
7.1 General.....	5
7.2 Chemical reagents.....	5
7.3 Apparatus.....	6
8 Chemical separation.....	6
9 Quality control.....	6
9.1 General.....	6
9.2 Variables that can influence the measurement.....	7
9.3 Instrument verification.....	7
9.4 Method verification.....	8
10 Expression of results.....	8
10.1 General.....	8
10.2 Data analysis.....	8
10.3 Background.....	8
10.4 Mass bias evaluation.....	9
10.5 Use of naturally occurring stable strontium as chemical yield tracer.....	9
10.5.1 Internal standard.....	9
10.5.2 Determination of stable strontium concentration.....	10
10.5.3 Mass bias evaluation.....	11
10.5.4 Sample mass concentration.....	11
10.5.5 Limit of detection.....	11
10.5.6 Limit of quantification.....	11
10.6 Isotope dilution method using an enriched isotope spike.....	11
10.6.1 General.....	11
10.6.2 Isotope spike solution.....	11
10.6.3 Mass bias evaluation.....	12
10.6.4 Sample mass concentration.....	12
10.6.5 Limit of detection.....	12
10.6.6 Limit of quantification.....	13
10.7 Conversion of mass concentration to mass activity.....	13
10.8 Conversion from mass to volume units.....	13
11 Test report.....	13
Annex A (informative) Chemical separation of strontium by crown ether-based extraction chromatographic resin — Sample strontium solution in 4 mol·l⁻¹ HNO₃.....	15
Annex B (informative) Chemical separation of strontium by strontium-specific extraction chromatographic resin — Sample strontium solution in 0,01 mol·l⁻¹ HNO₃.....	17
Annex C (informative) Chemical separation of strontium for large volume water samples by cation exchange resin and strontium-specific extraction chromatographic resin.....	19
Bibliography.....	21