ISO 23655-2:2022-09 (E)

Water quality - Nickel-59 and nickel-63 - Part 2: Test method using ICP-MS

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Terms,definitionsandsymbols 2
3.1 Terms and definitions 2
3.2 Symbols 2

4 Principle 4

5 Reagents 4
5.1 Standard solutions 4
5.1.1 Nickel-59 and 63Ni standards 4
5.1.2 Stable nickel standards 5
5.2 Holdback carrier 5
5.3 Water 5
5.4 Specific reagents for chemical separation 5

6 Equipment 6
6.1 Laboratory equipment for direct evaporation 6
6.2 Mass spectrometry vials 6
6.3 Measurement equipment: Inductively coupled plasma mass spectrometry 6

7 Sampling 6

8 ICP-MSsetupandcalibration 6
8.1 Background 6
8.2 Calibration 7
8.3 Mass bias 7
8.4 Background signal 7

9 Procedure 8
9.1 Preliminary 8
9.1.1 Stable element interferences content[12] 8
9.1.2 Iron and nickel separation 8
9.2 Nickel measurement solution preparation 8

10 Quality control 9

11 Expression of results 9
11.1 Nickel recovery 9
11.2 Nickel-59 activity calculation 10
11.3 Nickel-63 activity calculation 10
11.4 Uncertainties and characteristic limits[14] 10
11.4.1 Nickel-59 measurements 10
11.4.2 Nickel-63 measurements 11

12 Test report 11

Annex A (normative)Isolationandpurificationofnickel 13

Bibliography 15