ISO 5120:2023-07 (E)

Soil quality - Determination of perchlorate in soil using liquid chromatography-tandem mass spectrometry (LC-MS/MS)

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 1

4 Principle 1

5 Interferences 2

6 Reagents 2
6.1 Eluents 2
6.2 Extractant 2
6.3 Reagents for standard solutions 3
6.4 Standard solutions 3
6.4.1 Stock standard solution, c (ClO4 -) = 1 000 mg/l 3
6.4.2 Working standard solution, c (ClO4 -) = 10 mg/l 3
6.4.3 Calibration standards 3
6.4.4 Internal standard stock solution, c (Cl18O4 -) = 10 mg/l 3
6.4.5 Internal standard spiking solution, c (Cl18O4 -) = 1 000 g/l 3

7 Apparatus 3
7.1 Centrifuge tube 3
7.2 Equipment for extraction 3
7.2.1 Horizontal mechanical shaker 3
7.2.2 Centrifuge 3
7.3 Filtration device 4
7.4 Membrane filter 4
7.5 Clean-up cartridge 4
7.6 Micro pipette and Pasteur pipette 4
7.7 Liquid chromatograph/tandem mass spectrometer 4
7.7.1 Liquid chromatograph 4
7.7.2 Mass spectrometer 4

8 Procedure 5
8.1 Sampling and storage 5
8.2 Pretreatment 5
8.2.1 Drying 5
8.2.2 Sieving 5
8.3 Extraction 5
8.3.1 Mechanical shaking 5
8.3.2 Centrifuge 5
8.3.3 Filter and clean-up 5
8.4 Liquid chromatography-Tandem mass spectrometry (LC-MS/MS) 5
8.4.1 Liquid chromatography 5
8.4.2 Tandem mass spectrometry 5
8.4.3 Calibration using internal standard material 6

9 Quality control 6

10 Calculation 7

11 Expression of results 7

12 Test report 7

Annex A (informative) Examples of Liquid chromatography - tandem mass spectrometry (LC-MS/MS) conditions 8

Annex B (informative) Performance data 10

Bibliography 12