DIN EN ISO 12183:2024-08 (E)

Nuclear fuel technology - Controlled-potential coulometric measurement of plutonium (ISO 12183:2024); English version EN ISO 12183:2024

Contents

Page

Foreword ..... **iv**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Principle **1**

5 Reagents **2**

6 Apparatus **2**

7 Procedure **8**
7.1 Plutonium determination 8
7.2 Analysis of subsequent test samples 14

8 Expression of quantity values **14**
8.1 Calculation of the electrical calibration factor 14
8.2 Calculation of the blank 15
8.3 Fraction of electrolysed plutonium 15
8.4 Plutonium, amount of substance and mass 16
8.5 Quality control 16

9 Characteristics of the method **17**
9.1 Repeatability 17
9.2 Confidence interval 17
9.3 Analysis time 17

10 Interferences **17**

11 Procedure variations and optimization **21**
11.1 Accountability measurements and reference material preparation 21
11.2 Process control measurements 21
11.3 Measurement cell design 22
11.4 Electrolyte and electrode options 22
11.5 Test sample size 22
11.6 Background current corrections 23
11.7 Correction for iron 23
11.8 Control-potential adjustment 24
11.9 Calibration methodologies 25

12 Traceability to SI units **25**

Annex A (informative) **Purification by anion-exchange separation** **26**

Annex B (informative) **Determination of formal potential,** E_0 ..... **28**

Bibliography **29**