

ISO 16424:2012-12 (E)

Nuclear energy - Evaluation of homogeneity of Gd distribution within gadolinium fuel blends and determination of Gd₂O₃ content in gadolinium fuel pellets by measurements of uranium and gadolinium elements

Contents		Page
Foreword		iv
1	Scope	1
2	Normative references	1
3	Principle	1
4	Apparatus	2
4.1	High dispersion direct reading ICP-AES	2
4.2	Analytical balance	2
4.3	Small stainless steel spoon	2
5	Reagents	2
6	Reference solutions	2
6.1	Gadolinium element reference solutions	2
6.2	Uranium element reference solutions	3
7	Sample preparation	3
7.1	Sample preparation for evaluation of Gd homogeneity in gadolinium fuel blend	3
7.2	Sample preparation for determining the Gd ₂ O ₃ content of Gd fuel pellets	3
8	Calibration and analysis of the samples	3
8.1	Calibration of Gd peak line intensity	3
8.2	Calibration of U peak line intensity	3
8.3	Evaluation of Gd homogeneity in gadolinium fuel blend	3
8.4	Determination of Gd ₂ O ₃ content in gadolinium fuel pellet	4
9	Precision	6
10	Test report	6
Annex A (informative) Calibration and Gd and U measurement uncertainties		7
Annex B (informative) Derivation of O/M and O/U ratio formulas		10
Annex C (informative) Evaluation of Gd ₂ O ₃ measurement precision		12
Bibliography		15