

ISO 18213-3:2009-03 (E)

Nuclear fuel technology - Tank calibration and volume determination for nuclear materials accountancy - Part 3: Statistical methods

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Table of symbols	2
4	Data required	7
5	Diagnostic plots	7
5.1	Overview	7
5.2	Calibration data	7
5.3	Auxiliary data	11
6	Uncertainty estimation for calibration data	12
6.1	Measurement system response (height)	12
6.2	Measurements of tank content (volume, mass)	14
7	Estimation of the measurement equation and associated uncertainties	14
7.1	Preliminaries	14
7.2	Measurement model	15
7.3	Estimation of model parameters	19
7.4	Volume determinations and variance estimates	22
7.5	Confidence regions and prediction intervals	23
8	Uncertainty estimates for volume determinations	28
8.1	Overview	28
8.2	Contained volumes	28
8.3	Transfer volumes	32
Annex A (informative) Examples of diagnostic plots		33
Annex B (informative) Welch-Satterthwaite equation for computing degrees of freedom		42
Annex C (informative) Target uncertainty limits for measurements associated with tank calibration and volume determination		43
Bibliography		49