

ISO 11352:2025-09 (E)

Water quality - Estimation of measurement uncertainty based on validation and quality control data

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Symbols	4
5	Principle	5
6	Procedure	6
7	Preparative considerations for the estimation of measurement uncertainty	6
7.1	Specification of the measurement	6
7.2	Specification of the parametric form in which the measurement uncertainty is reported	7
8	Evaluation of available data for within-laboratory reproducibility and bias	7
8.1	Approach and criteria	7
8.2	Within-laboratory reproducibility	8
8.2.1	General	8
8.2.2	Quality control samples covering the whole analytical process	9
8.2.3	Using standard solutions and replicates of test samples	9
8.2.4	No stable quality control samples	10
8.3	Bias	10
8.3.1	General	10
8.3.2	Analysis of suitable reference materials	11
8.3.3	Participation in interlaboratory comparisons	12
8.3.4	Recovery experiments	13
9	Calculation of the combined standard uncertainty	15
10	Calculation of the expanded uncertainty	16
11	Initial estimation of measurement uncertainty from reproducibility standard deviation	16
12	Report	16
Annex A (informative)	Division of the measurement range into two parts -- Constant absolute and constant relative uncertainties	17
Annex B (normative)	Estimation of the pooled standard deviation from replicate measurements	24
Annex C (informative)	Examples of the estimation of measurement uncertainty	25
Bibliography		38