

ISO 33403:2024-06 (E)

Reference materials - Requirements and recommendations for use

Contents		Page
Foreword.....		iv
Introduction.....		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Symbols	2
5	Conventions	2
6	RMs and their role in measurement	3
6.1	Common applications of RMs.....	3
6.2	Property values.....	5
6.2.1	General.....	5
6.2.2	Specification of the property.....	5
6.3	Uncertainty statement.....	6
6.4	Traceability statement.....	7
7	Handling of RMs and CRMs	8
8	Assessment of precision	8
8.1	General.....	8
8.2	Number of replicate measurements.....	9
8.3	Requirements with respect to the RM.....	9
8.4	Measurement.....	10
8.5	Data treatment.....	10
8.6	Calculation and assessment of precision.....	11
9	Bias assessment	11
9.1	General.....	11
9.2	Approach to bias checking.....	12
9.3	Utilizing bias data.....	12
10	Calibration	13
10.1	General.....	13
10.2	Practical considerations for calibration.....	13
10.3	Calibration models.....	14
11	Assigning values to other materials	14
11.1	General.....	14
11.2	Pure substances.....	15
11.3	Preparation of calibrants.....	16
12	Conventional scales	16
13	Selection of RMs and CRMs	18
13.1	General.....	18
13.2	Selection of a CRM.....	18
13.3	Selection of RMs.....	19
13.4	Relevance to the measurement system.....	20
Annex A (informative)	Calibration models and associated uncertainty models	21
Annex B (informative)	Decision errors	24
Annex C (informative)	Example of conventional scales	25
Bibliography		26