

DIN EN ISO 8655-8:2022-11 (E)

Piston-operated volumetric apparatus - Part 8: Photometric reference measurement procedure for the determination of volume (ISO 8655-8:2022)

Contents		Page
European foreword		4
Foreword		5
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	7
4	General requirements	8
5	Test equipment	8
5.1	General	8
5.2	Spectrophotometer	8
5.3	Cuvette and mixer	8
5.4	Measuring devices	9
5.5	Equipment used for solution preparation	9
5.6	Balances	9
5.7	Density meter	10
5.8	pH meter	10
6	Reagents	10
6.1	General requirements	10
6.2	Water	10
6.3	Buffer solution	10
6.4	Copper(II) chloride solution	10
6.5	Ponceau S solutions	10
6.6	Calibrator solutions	11
6.7	Stability of solutions	12
6.7.1	General	12
6.7.2	Preservatives	12
6.7.3	Light sensitivity	12
6.7.4	Storage temperature	12
7	Test conditions	12
7.1	General	12
7.2	Test room	12
7.3	Evaporation	13
8	Procedure	13
8.1	General	13
8.1.1	Summary	13
8.1.2	Test conditions	13
8.1.3	Test volume	13
8.1.4	Number of measurements per volume to be tested	14
8.2	System calibration	14
8.2.1	General	14
8.2.2	System calibration procedure	14
8.2.3	Previous calibration	14

8.3	Photometric procedure.....	14
8.3.1	Preparation of cuvettes.....	14
8.3.2	Zero of the spectrophotometer.....	15
8.3.3	Starting absorbances.....	15
8.3.4	Dispensing of test liquids.....	15
8.3.5	Absorbance of the chromophore mixture.....	15
8.3.6	Calculation of the delivered test volume.....	15
8.4	Preparation.....	15
8.5	Single-channel air displacement pipettes (in accordance with ISO 8655-2).....	16
8.5.1	General.....	16
8.5.2	Test cycle.....	16
8.6	Multi-channel pipettes (in accordance with ISO 8655-2).....	17
8.7	Positive displacement pipettes (in accordance with ISO 8655-2).....	17
8.8	Burettes (in accordance with ISO 8655-3).....	17
8.9	Dispensers (in accordance with ISO 8655-5).....	18
8.10	Syringes (in accordance with ISO 8655-9).....	18
8.10.1	General.....	18
8.10.2	Test cycle.....	18
9	Evaluation.....	19
9.1	Calculation of volume.....	19
9.1.1	Calibration constant.....	19
9.1.2	Volume of test liquid.....	19
9.1.3	Temperature correction.....	20
9.1.4	Mean volume.....	20
9.2	Systematic error of measurement.....	20
9.3	Random error of measurement.....	21
9.4	Uncertainty of measurement.....	21
10	Reporting of results.....	21
	Annex A (normative) Calculation of volumes from balance readings.....	23
	Bibliography.....	24