

CALIBRATION CERTIFICATE

Number VG 240028

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Mettler-Toledo S.A.E. Laboratorio de Calibración

METTLER TOLEDO



Carrer Segrià 7 - 9 08940 Cornellà de Llobregat (Barcelona) Tel. 93 223 76 00 Laboratorio.Calibracion@mt.com

ITEM Piston operated burette

MANUFACTURER Mettler Toledo

MODEL DV 1010

NOMINAL VOLUME 10 ml

IDENTIFICATION C221094710

APPLICANT Mettler-Toledo Pac Rim AG, Taiwan 2F, No. 17, Lane 171, Jiu Zong Rd., Sec. 2, Neihu District, Taipei City 11494,

Calibration date 23 January 2024

Autorized Signatory

This certificate in digital format is the original one. Any printing will be considered as a copy.

Este certificado se expide de acuerdo con las condiciones de la acreditación concedida por ENAC, que ha comprobado las capacidades de medida del laboratorio y su trazabilidad a patrones nacionales o internacionales.

ENAC es firmante del Acuerdo de Reconocimiento Mutuo (MLA) de calibración de European Cooperation for Accreditation (EA) y de International Laboratory Accreditation Cooperation (ILAC).

This certificate is issued in accordance with the conditions of acreditation granted by ENAC which has assessed the measurement capability of the laboratory and its traceability to national or international standards.

ENAC is one of the signatories of the Multilateral Agreement of the European Cooperation for Accreditation (EA) and the International Laboratories Accreditation Cooperation (ILAC).

Instrument information

Burette	DV 1010
Serial number	C221094710
Nominal volume	10 ml

Calibration procedure

Procedure PEC/MTE/22 based to the ISO 8655 norm and the METTLER TOLEDO manuals. The measured volume corresponds with delivered volume (Ex) at the reference temperature of 20 °C.

Calibration conditions

Ambient temperature	Min. 20	,4 ⁰C
Relative humidity	62,2 %	Hr
Pressure	1022,2 mb	bar
Maintenance:	Before calibration, sea	als (references 10

Max. 20,4 °C

ntenance: Before calibration, seals (references 101003 and 25737) and piston have been replaced, and burette glass has been cleaned.

Traceability

Standard equipment used

Balance	BAL01	AT201 - 5 decimal places balance
Burette drive	VAL-T50	T50
Water temperature	TER89	0,1 °C resolution
Ambient conditions	REG05	(air Temp, rH)
Class III water	2324709812	

The measured volume has been calculated conform to ISO/TR 20461:2023.

The traceability of measurements are refered to laboratories accredited by ILAC signatories accreditation bodies or national laboratories EURAMET signatories.

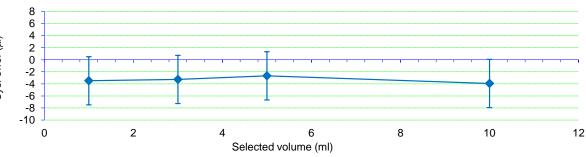
Uncertainty

The reported expanded uncertainty of measurement is stated as the Standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with document EA-4/02 M: 2022.

Calibration results (after maintenance)

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Burette stroke	10%	30%	50%	100%	
Selected volume	1	3	5	10	ml
Water temperature	20,5	20,5	20,5	20,5	°C
Measured volume	996,5	2996,7	4997,3	9996,1	μl
Systematic error	-3,5	-3,3	-2,7	-3,9	μl
Measurement uncertainty	4,0	4,0	4,0	4,0	μΙ
Random error	0,28	0,24	0,34	0,34	μl
Max. Permissible Sys. Error	20	20	20	20	μl
Max. Permissible Random Error	7	7	7	7	μl
Evaluation*	Pass	Pass	Pass	Pass	





* Evaluation and permissible errors from ISO 8655-3:2022. According with this norm, uncertainty is not taken into account.

Mettler- Toledo S.A.E. Carrer Segrià, 7-9 08940 Cornellá de Llobregat (Barcelona)

Technician: D. Gallardo Remarks: ---