



CALIBRATION CERTIFICATE

Number **VG 190170**

Page 1 of 2

Mettler-Toledo S.A.E.

Laboratorio de Calibración

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METTLER TOLEDO



ITEM **Piston operated burette**

MANUFACTURER **METTLER TOLEDO**

MODEL **ME-51107126**

NOMINAL VOLUME **10 ml**

IDENTIFICATION **B504536332**

APPLICANT **METTLER-TOLEDO PAC RIM AG-TAIWAN**
2F., No 17, Lane 171, Sec. 2, Jiuzong Rd
11494 Taipei City Taiwan

Calibration date **17 May 2019**

Authorized Signatory

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 accreditation 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 ME-51107126
 Serial number B504536332
 Nominal volume 10 ml

Calibration procedure

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

Calibration conditions

Ambient temperature Min. 19,9 °C Max. 20,5 °C
 Relative humidity 53,3 % Hr
 Pressure 941,2 mbar

Maintenance: 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	MOT01	T50
Water temperature	TER68	0,1 °C resolution
Ambient conditions	REG02	(air Temp, rH)
Class III water	1833602829	

The reference water density is referred to the ISO/TR 20461 (2000) tables.

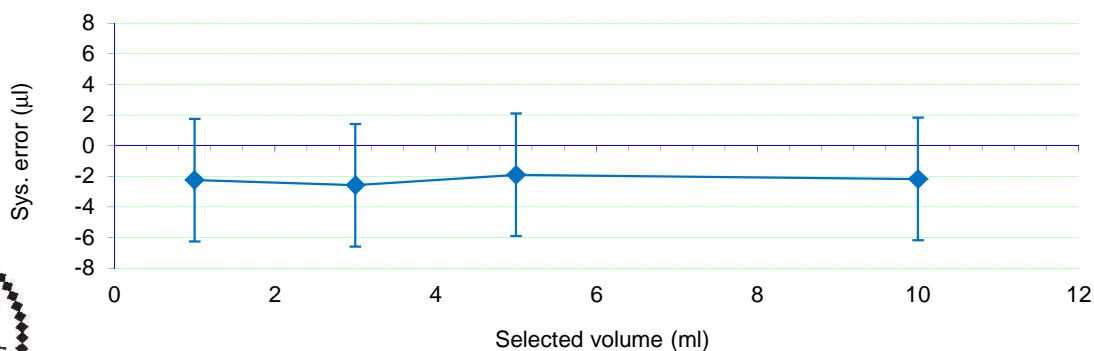
The traceability of measurements are referred to laboratories accredited by recognized ILAC organisms or national laboratories EUROMET participants.

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 EAL publication EAL-R2.

Calibration results (after maintenance)

Burette stroke	10%	30%	50%	100%	
Selected volume	1	3	5	10	ml
Water temperature	19,7	19,7	19,9	19,7	°C
Measured volume	997,8	2997,4	4998,1	9997,8	µl
Systematic error	-2,2	-2,6	-1,9	-2,2	µl
Relative error at selected volume	-0,22%	-0,09%	-0,04%	-0,02%	
Relative error at nominal volume	-0,02%	-0,03%	-0,02%	-0,02%	
Measurement uncertainty	4	4	4	4	µl



Technician: Vanessa Parra
 Coslada, 17 May 2019

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