



# CALIBRATION CERTIFICATE

Number VG 230373

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

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## METTLER TOLEDO



ITEM Piston operated burette

MANUFACTURER Mettler Toledo

MODEL DV 1005

NOMINAL VOLUME

5 ml

IDENTIFICATION B231174780

APPLICANT Tec Instrumental SA  
Blas Parera 1007  
(B1602CTS) Florida-Vte Lopez

Calibration date 12 July 2023

Authorized Signatory

Firmado  
digitalmente por  
David Gallardo  
Fecha: 2023.07.13  
08:50:12 +02'00'

*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 accreditation granted by ENAC which has assessed the measurement capability of the laboratory and its traceability to national or international standards.*

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### Instrument information

Burette DV 1005  
 Serial number B231174780  
 Nominal volume 5 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. 20,5 °C Max. 20,5 °C  
 Relative humidity 66,2 % Hr  
 Pressure 1011,1 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	VAL-T50	T50
Water temperature	TER128	0,1 °C resolution
Ambient conditions	REG02	(air Temp, rH)
Class III water	2301209810	

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

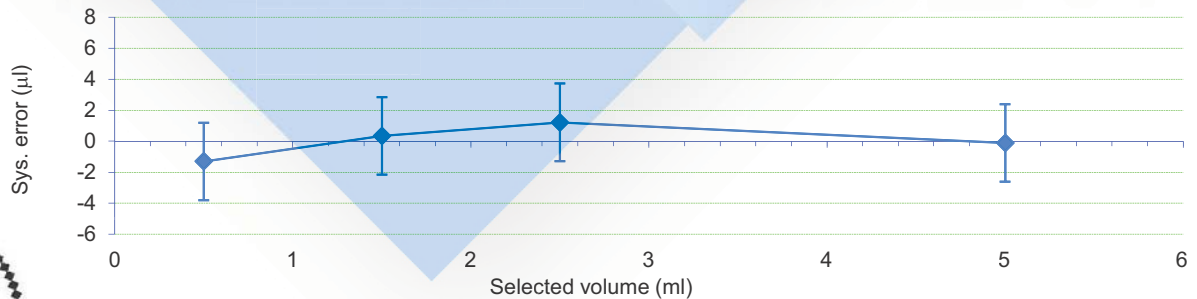
The traceability of measurements are referred to laboratories accredited by ILAC signatories accreditation bodies or national laboratories EURAMET signatories.

### 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)

	10%	30%	50%	100%	
Burette stroke	10%	30%	50%	100%	
<b>Selected volume</b>	<b>0,5</b>	<b>1,5</b>	<b>2,5</b>	<b>5</b>	<b>ml</b>
Water temperature	20,1	20,1	20,1	20,1	°C
Measured volume	498,7	1500,3	2501,2	4999,9	µl
<b>Systematic error</b>	<b>-1,3</b>	<b>0,3</b>	<b>1,2</b>	<b>-0,1</b>	<b>µl</b>
Measurement uncertainty	2,5	2,5	2,5	2,5	µl
Random error	0,18	0,13	0,19	0,22	µl
Max. Permissible Sys. Error	15	15	15	15	µl
Max. Permissible Random Error	5	5	5	5	µl
<b>Evaluation*</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	



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

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Technician: D. Gallardo

Remarks: ---