CALIBRATION CERTIFICATE

Number **VG 230375**

ENAC
CALIBRACIÓN
ISO 17025
Nº61 / LC10.038

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 1020
NOMINAL VOLUME	20 ml
IDENTIFICATION	B231174736
APPLICANT	Tec Instrumental SA Blas Parera 1007 (B1602CTS) Florida-Vte Lopez
Calibration date	12 July 2023

Autorized Signatory

Firmado digitalmente por David Gallardo
Fecha: 2023.07.13 08:50:45 +02'00'

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

Instrument information

Burette	DV 1020
Serial number	B231174736
Nominal volume	20 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 ºC.

Calibration conditions

Ambient temperature	Min. 20,5 ºC	Max. 20,5 ºC
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 ºC resolution
Ambient conditions	REG02	(air Temp, rH)
Class III water	2301209810	

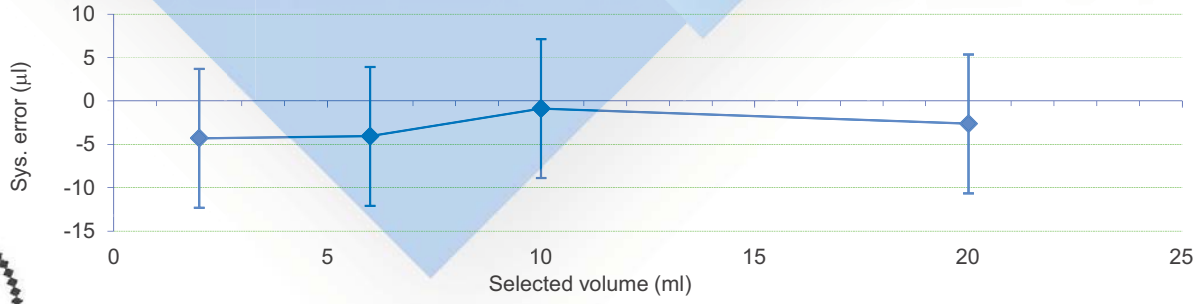
The measured volume has been calculated conform to ISO/TR 20461:2023.
The traceability of measurements are refered to laboratories accredited by ILAC signatories accreditation bodies or national laboratories EURAMET signatories.

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)

Burette stroke	10%	30%	50%	100%	
Selected volume	**2**	**6**	**10**	**20**	**ml**
Water temperature	20,1	20,1	20,1	20,1	ºC
Measured volume	1995,7	5995,9	9999,1	19997,4	µl
Systematic error	**-4,3**	**-4,1**	**-0,9**	**-2,6**	**µl**
Measurement uncertainty	**8,0**	**8,0**	**8,0**	**8,0**	**µl**
Random error	**0,80**	**0,59**	**0,72**	**0,61**	**µl**
Max. Permissible Sys. Error	40	40	40	40	µl
Max. Permissible Random Error	14	14	14	14	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: ---