



# CALIBRATION CERTIFICATE

Number **VG 240027**

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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 **C221094709**

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.

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*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 C221094709  
 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. 20,4 °C Max. 20,4 °C  
 Relative humidity 62,2 % Hr  
 Pressure 1022,2 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      | 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.

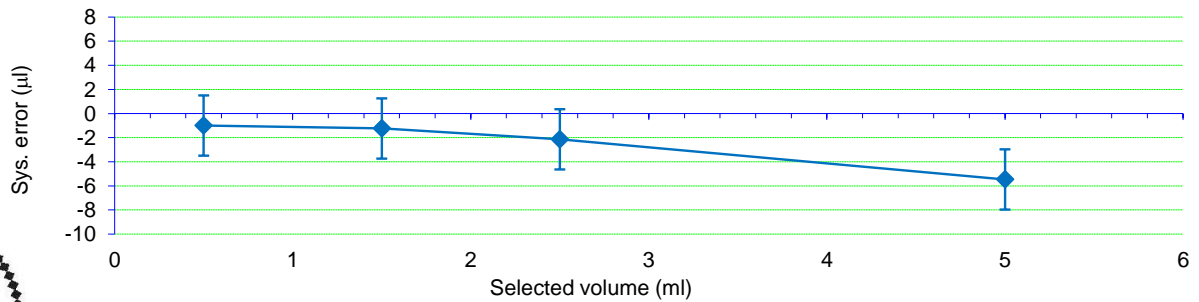
The traceability of measurements are referred to laboratories accredited by ILAC signatories accreditation bodies or national laboratories EURAMET signatories.

### 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)

| 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             | 20,5        | 20,5        | 20,5        | 20,5        | °C        |
| Measured volume               | 499,0       | 1498,8      | 2497,9      | 4994,5      | µl        |
| <b>Systematic error</b>       | <b>-1,0</b> | <b>-1,2</b> | <b>-2,1</b> | <b>-5,5</b> | <b>µl</b> |
| Measurement uncertainty       | 2,5         | 2,5         | 2,5         | 2,5         | µl        |
| Random error                  | 0,15        | 0,09        | 0,14        | 0,15        | 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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 08940 Cornellà de Llobregat (Barcelona)

Technician: D. Gallardo

Remarks: ---