

Fact sheet of the interlaboratory comparison:

Pipettes calibration – 2025/2026

1. Context and objectives:

In 2025-2026, the CT2M organizes an european inter-laboratory comparison on the calibration of volumetric piston instruments.

The objectives of this proficiency testing are:

- Evaluating the performance of participants in pipettes calibrations, and monitoring the maintenance of their performance;
- Identifying problems in laboratories which may, for example, relate to measurement methods, the effectiveness of staff training and supervision, or the calibration of equipment;
- Improving user confidence in measurement results;
- Identifying differences in measurement results;
- Training participants based on the results of these comparisons;
- Validation of claimed measurement uncertainties.

2. Proficiency testing item:

- ✓ A 5-50 μL automatic variable volume pipette,
- ✓ A 100-1000 μL automatic variable volume pipette,
- ✓ A 500-5000 μL automatic variable volume pipette.

Pipettes are calibrated at the beginning and at the end of the circuit by an ISO 17025 accredited laboratory.

3. Calibration Method:

The recommended calibration method is the gravimetric method as per ISO 8655-6, with 10 weighings. However, any other method may be used for this inter-laboratory comparison (colorimetric method, number of weighings less than 10, etc.). The method used will be indicated by each participant in the results file to be completed.

For each pipette, the volumes to be calibrated are as follows:

- ✓ Calibration at 5, 25 and 50 μL for the 5-50 μL automatic variable volume pipette,
- ✓ Calibration at 100, 500 and 1000 μL for the 100-1000 μL automatic variable volume pipette,
- ✓ Calibration at 500, 2500 and 5000 μL for the 500-5000 μL automatic variable volume pipette.

Participants may sign up for one or more pipettes, **it is not mandatory to calibrate all 3 pipettes proposed in this proficiency test. Furthermore, it is not mandatory to calibrate all 3 volumes indicated above.**

A detailed protocol will be supplied to each participant at the start of the circuit.

4. Conditions for participation:

The following conditions must be met in order to take part:

- ✓ Possess the resources and facilities needed to carry out the calibrations
- ✓ Provide an uncertainty associated with each result (*)
- ✓ Be located in one of the countries of the European Union or, if this is not the case, be accredited according to ISO 17025 by an accreditation body that has signed the EA Calibration MLA or the ILAC Calibration MRA for the calibrations concerned.

(*) If you wish to take part in this ILC and you are unable to provide uncertainty associated with your results, you may be assisted by CT2M in estimating your uncertainties as part of this ILC. In this case, please indicate this on the registration form.

5. Organization of the proficiency testing:

The instruments will move from one participant to another from December 2025.

Participants must calibrate pipettes and return instruments to the next laboratory within one week. Respecting this deadline is crucial to the success of the campaign.

The CT2M will provide participants with a file in which the results must be transcribed. For each testing volume, participants must indicate at least the following results:

- ✓ The delivered volume,
- ✓ The standard deviation “S” associated with the delivered volume,
- ✓ The expanded calibration uncertainty to $k=2$.

Other details of the method and resources used will be entered by participants on the results file.

6. Assigned values and evaluation of performance:

The aim of this inter-laboratory comparison is to assess the ability of each participant to obtain a calibration result close to the assigned value, taking into account the expanded uncertainty ($k=2$).

To meet this objective, an assigned value will be established for each volume. It will be calculated from the results of the laboratory carrying out the calibrations for the stability study and from the participants' results, which are traceable to the international system of units. The metrological traceability of the assigned value is guaranteed by the ISO 17025 accreditation of the laboratory carrying out the calibrations for the stability study and by the ISO 17025 accreditation of the participants whose results will be taken into account.

The performance score used will be the En score, which enables a comparison of the participants' results with the assigned value, taking into account the expanded uncertainties ($k=2$).

The rounding rules and acceptance criteria for performance scores are those described in the ISO 13528 and ISO 17043 standards.

7. **Reports:**

The final report will be distributed to all participants. The final report sent by the CT2M must not be distributed by participants outside their organisation. The information contained in the report may not be used by participants for scientific publications or any other communication medium.

Intermediate reports will also be issued during the circuit, in cases where a large number of participants means that the circuit will last longer than 6 months.

8. **Provisional schedule:**

Key steps	Estimated deadline
Registration	Until October 31, 2025
Detailed protocol and results file sent	December 2025
Circuit launch	December 2025
Interim report sent (if circuit > 6 months)	June 2026
Publication of final report	Depends on number of participants

9. **Price:**

Participation fees: 650 € net total

This price is independent of the number of pipettes (same fee for one, two or three pipettes). This price includes the provision of the instrument to be calibrated, the supply of tips, of the results file to be completed and the participation protocol, transport costs to the circuit launch and the supply of interim and final reports containing the analysis of results and the evaluation of performance.

For participant located in the European Union, the transport cost of the proficiency testing items to the next participant (located in the European Union) will be borne by him, who is free to choose the carrier. For the participants located outside the European Union, the transport to and from of proficiency testing items must be organised and paid for by the participant.

Option “Individual report”: 150 € net total (in addition to the participation fees)

In addition to the full final report, you have the option of receiving a personalised individual report. This individual report will contain only your results, the assigned values, an assessment of your performance and a conclusion as to whether or not your results are acceptable.

10. Reciprocal commitments:

CT2M commitments:

The CT2M undertakes to:

- guarantee the confidentiality of participants results and respect their anonymity (*),
- carrying out the performance evaluation in complete impartiality,
- organize and process the results in accordance with the reference applicable documents (ISO 17043, ISO 13528).

(*) The data obtained and generated during the inter-laboratory comparison may be consulted during internal or external audits. Auditors are systematically subject to a confidentiality agreement. For communication purposes (conferences, articles, etc.), the results may be used but in a totally anonymous manner. The transport of the test item from one participant to another necessarily entails the partial loss of anonymity concerning the identity of the previous participant and the following participant. Registration for this inter-laboratory comparison implies acceptance of this condition.

Participant commitments:

The participants in this inter-laboratory comparison undertake to:

- respect the protocol provided for carrying out the calibrations,
- provide their results within the time limit set by the organizer by emailing the completed results file together with an accredited calibration certificate (if applicable),
- not to communicate with any other participant who may be known in order to avoid any risk of collusion,
- transmit all the necessary information of the successful completion of the inter-laboratory comparison to all the persons concerned within their laboratory,
- inform the CT2M of any malfunction.

11. Registration and contact:

To take part in the inter-laboratory comparison "ILC Pipettes 2025-2026", please complete the registration form "CT2M: REGISTRATION FORM - ILC PIPETTES 2025-2026" by clicking on the following link: <https://forms.office.com/e/Rz60qS6TuD> or by scanning the QR Code below:

For further information, please contact us:

- ✓ Email: cilpipettes@ct2m.fr
- ✓ Phone: +33 (0)4 90 50 90 14



Appendix: Terms of sale

1. Invoicing

Invoicing is carried out after sending the final report or an intermediate report of the proficiency testing. **The settlement is 30 days end of month of the invoice date.**

Every registration fee is due when the campaign is started and won't be cancelled or refund.

2. Loss, degradation or elimination of the test item

In case of loss, damage or elimination of the proficiency test item by a participant, the CT2M reserves the right to claim its amount or purchase and new shipment: **300 € net total per pipette.**

The CT2M cannot be held responsible for loss, disposal or non-receipt of the proficiency test item.

3. Number of participants

If the number of participants is insufficient for an appropriate statistical treatment, the CT2M reserves the right to cancel this inter-laboratory comparison.

4. Management and storage of personal data

The CT2M will use the data of the participants in order to communicate with the participant during the ILC. These data are also used to send them intermediate and/or final reports. The data may be used for commercial purposes: communication of new features on the website, communication on new ILC or on ILC in which a participant have already participated. The data will be kept for 5 years after the last communication. (The data listed in the quotes and reports are kept for 10 years.)

The provisions governing the management of personal data under the RGPD are available on our website.

In the event of refusal, an email should be sent to ct2m@ct2m.fr.