

### 1 Topic

Presentation of the interlaboratory comparison in the field of measurement of temperature. Within the comparison, calibration of a standard platinum measuring chain thermometer is performed (comparison from -20°C to 180°C).

### 2 Comparison support

The comparison support is a standard temperature measuring chain with platinum resistance (PT100). The probe has a length of 298 mm and a diameter of 6.35 mm.

It is connected to the thermometer readouts FLUKE 1524, with a resolution of 0.001°C.

No adjustment, and no action which could modify the operation of the support should be made by the participants.



Figure 1 : comparison chain

### 3 Measurement method

It is recommended that the participants use their standard procedure for calibration of platinum thermometer. However the application of standardized methods for thermometer calibration is strongly recommended: FD X07-029-1 Métrologie - Procédure d'étalonnage et de vérification des thermomètres, ASTM E644 - 11 Standard Test Methods for Testing Industrial Resistance Thermometers. The result is the deviation between the read value (unit °C) from the thermometer under calibration and the standard value.

The comparison is performed at different levels: **-20°C ; 0°C ; 50 °C ; 100°C ; 120°C ; 180°C**.

The measurement is performed three time by level, with a **thermal break** between each measure.

The reference values of the comparison is a consensus value from participants. For score *En*, the result of an accredited laboratory is used.

The use of thermometer calibration bath is recommended, with a minimum immersion of 100 mm. The use of four calibration furnace is allowed but must be indicated to the organisers.

The laboratory declared **uncertainty must be less than 0,5°C**.

### 4 Results

The results are analysed by Deltamu, according to the recommendation of the standards ISO 5725<sup>1</sup> and ISO 13528<sup>2</sup>. A detailed summary report of the analysis is given to each participant.

In this report, the results are presented **anonymously**.

The laboratory performance is assessed by scores recommended by standards ISO 17043 and ISO 13528, *E<sub>n</sub>* number and z-score.

### 5 Organisation of the ILC

The intercomparison support circulate directly between the participants, following a schedule defined by Deltamu in agreement with the participants. The schedule is built gradually over the next 2 to 3 participants to limit the impact of a delay.

The laboratory has **one week** to take measurements and send the intercomparison support.

Transportation between each participant (insurance, handling, packing) is the responsibility of the sending laboratory.

### 6 Scheduling

The start of the ILC is planned for 2023 or can be planned sooner in case of bilateral comparison with the results of the last campaign.

<sup>1</sup> ISO 5725, Accuracy (trueness and precision) of measurement methods and results. 1994.

<sup>2</sup> ISO 13528, Statistical methods for use in proficiency testing by interlaboratory comparison. 2015.

## Reply form

*Please return this registration form to [commerce@deltamu.com](mailto:commerce@deltamu.com)*

Company : .....

Full name of the main contact :

Phone : .....

Email : .....

Address : .....

City and postal code : .....

Announced uncertainty : .....

Substitute contact person (1) : .....

### **Cost of the Temperature interlaboratory comparison : 650 € HT**

**\*This document will be considered as an order when invoicing**

#### **Reciprocal commitments :**

This registration commits, on the honor, the company and the participants against any collusion or forgery of the results. The signatory of the present document makes a commitment to transfer all the information necessary for the good progress of the measures to every person brought to manipulate the supports of comparison.

**He will have to make sure that no fitting, and no manipulation susceptible to modify the functioning of supports is made.** Any noticed dysfunction must be notified to the coordinator.

**The invoicing** is made at the beginning of the circuit. The regulation is 45 days the month end. From the date of launch of the circuit, any registered inscription is due and can be the object of no cancellation or refund.

**In case of loss or of destruction of supports, Deltamu reserves the right to demand the amount of the supports of comparison to the company responsible for the sending.** This amount will be indicated in the beginning of campaign and will allow each of the participants to assure the sent parcel.

**Deltamu could not be held responsible in case of loss or of destruction of supports.** Therefore, the sums collected in conformance with registration fees will not be returned. Deltamu undertakes however to organize a new intercomparison as soon as possible with the same participants.

Upon receipt of this form, we will send you a validation of registration, then the plan of campaign in the starting up of the circuit.

- (1) In case of absence of the main interlocutor, Deltamu will address the interlocutor of replacement who will thus have to arrange all the information relative to the present campaign of intercomparison.

Stamp of the company

Date and signature :