

## CERTIFICADO DE CALIBRACIÓN / CALIBRATION CERTIFICATE

## INNOVATECIS CIA LTDA

General José Maria Guerrero N69-170 y Alfonso del Hierro

Quito, Ecuador

(+593) 02 6040 607

innovatec@innovatec.com.ec

Certificado No. (Certificate #): 54281

Fecha de Recepción (Reception Date): 2025-02-21

Fecha de Calibración (Calibration Date): 2025-02-21

Próxima Fecha de Calibración (Calibration Due): -

Fecha de Emisión (Emission Date): 2025-02-24

**Cliente (Client):** PRODUCTOS ALIMENTICIOS PASCUAL S A  
Av. José Agustín Arango Juan Díaz, PANAMÁ, PANAMÁ

## Información del Instrumento (Instrument Information)

**Equipo (Instrument):** Cámara ambiental **Int. de Medición:** (0 a 60) °C/Amb. @ 95 %HR **Ubicación (Location):** Laboratorio de Investigación y Desarrollo  
Planta de Producción Pascual  
**Marca (Brand):** THERMO SCIENTIFIC (Measurement Range)  
**Modelo (Model):** 3911 **División de escala:** 0.1 °C / 1 % HR **Lugar de Calibración:**  
**Serie (Serial #):** 314260-297 (Resolution) **(Place of Calibration):** In Situ / On Site  
**Código (Code):** LABP-CES-01

## Datos de Calibración (Calibration Info)

## Condiciones Ambientales (Environmental Conditions)

**Procedimiento (Procedure):** INN-PC-29**Temperatura (Temp):** (23.6 °C ± 23.3 °C)**Humedad (Humidity):** (75 %HR ± 69 %HR)

## Trazabilidad (Traceability Info)

| Patrón (Standard) | Marca (Brand) | Cert. #        | Última Calibración (Last Cal.) | Período (Period) |
|-------------------|---------------|----------------|--------------------------------|------------------|
| Termohigrómetro   | Elitech       | 47516 al 47521 | 2024-06-10                     | 1                |
| Termohigrómetro   | Elitech       | 43461 al 43466 | 2025-02-04                     | 1                |
| Termohigrómetro   | Elitech       | 53103          | 2025-01-15                     | 1                |

## Resultados (Results)

| Patrón (Standard) | UBP (UUT) | Error (Error) | Incertidumbre (Uncertainty) | Estabilidad (Stability) | Uniformidad (Uniformity) |
|-------------------|-----------|---------------|-----------------------------|-------------------------|--------------------------|
| °C                | °C        | °C            |                             |                         | Axial / Radial           |
| 39.4              | 40.0      | 0.6           | ± 1.1 °C                    | ± 0.1 °C                | ± 0.5 °C / ± 0.6 °C      |
| -                 | -         | -             | -                           | -                       | -                        |

| Patrón (Standard) | UBP (UUT) | Error (Error) | Incertidumbre (Uncertainty) | Estabilidad (Stability) | Uniformidad (Uniformity) |
|-------------------|-----------|---------------|-----------------------------|-------------------------|--------------------------|
| %HR               | %HR       | %HR           |                             |                         | Axial / Radial           |
| 78.3              | 80        | 1.7           | ± 2.3 °C                    | ± 1.4 %HR               | ± 2.9 %HR / ± 2.0 %HR    |
| -                 | -         | -             | -                           | -                       | -                        |

El presente Certificado de Calibración posee la trazabilidad en esta magnitud hacia el Patrón Nacional, a través de la realización de la unidad de medida en el NPL, NIST, o otro Laboratorio Nacional reconocido al Sistema Internacional de Medidas. La calibración fue realizada bajo un Sistema de Gestión de Laboratorio conforme a la Norma ISO/IEC 17025:2017. Los resultados y su incertidumbre reportada con un nivel de confianza de K=2, 95% son relacionados a este instrumento y en el tiempo que se realizó las medidas. Este Laboratorio no se responsabiliza de los perjuicios que pueda ocasionar el uso inadecuado del instrumento calibrado. La reproducción parcial es prohibida, la reproducción total deberá hacerse con la autorización escrita aprobada por INNOVATEC Industrial Solutions. This Certificate of Calibration provides traceability of measurement to the National Standard, through units of measurement realized at the NPL, NIST or other recognized National Standard Laboratories to the International System of Units. The calibration was performed under a Laboratory Management System in accordance with the ISO/IEC 17025:2017 Standard. The results and the reported uncertainty at a confidence level of K=2, 95% are related only to this instrument and at the time of measurement. This Laboratory is not responsible for any damages that may result from improper use of the calibrated instrument. Partial reproduction is forbidden, the total reproduction must have an approved written authorization by INNOVATEC Industrial Solutions.

## Comentarios:

Comments Ninguno.

Calibrado por:  
Calibrated by: Ing. Ruben Ortega

Aprobado por:  
Approved by:

**Certificado No.:** 54281

**Equipo (Instrument):** Cámara ambiental

**Fecha de Calibración:** 2025-02-21

**Marca (Brand):** THERMO SCIENTIFIC

| Tabla 1.0: Lecturas de los sensores durante desplazamiento en la zona de trabajo @ 40 °C |                               |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|
| Tiempo<br>(hh:mm:ss)                                                                     | Lectura del Patrón °C @ 40 °C |      |      |      |      |      |      |      |      |      |
|                                                                                          | PC                            | P1   | P2   | P3   | P4   | P5   | P6   | P7   | P8   | P9   |
| 11:54:12 AM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 11:55:12 AM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 11:56:12 AM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 11:57:12 AM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.6 |
| 11:58:12 AM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 11:59:12 AM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:00:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:01:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:02:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:03:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:04:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:05:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:06:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.4 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:07:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.4 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:08:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.6 |
| 12:09:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:10:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.5 | 39.2 | 39.8 | 39.4 | 39.6 |
| 12:11:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.4 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:12:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.4 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:13:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.4 | 39.4 | 39.2 | 39.8 | 39.4 | 39.6 |
| 12:14:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.6 |
| 12:15:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.4 | 39.5 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:16:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.4 | 39.5 | 39.2 | 39.8 | 39.4 | 39.5 |
| 12:17:12 PM                                                                              | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| Promedio                                                                                 | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| Desviación                                                                               | 0.0                           | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Max                                                                                      | 40.0                          | 39.3 | 39.3 | 39.5 | 39.4 | 39.5 | 39.2 | 39.8 | 39.4 | 39.6 |
| Min                                                                                      | 40.0                          | 39.3 | 39.3 | 39.5 | 39.3 | 39.4 | 39.2 | 39.8 | 39.4 | 39.5 |
| ΔT Est.                                                                                  | 0.1                           |      |      |      |      |      |      |      |      |      |
| ΔT Radial                                                                                | 0.6                           |      |      |      |      |      |      |      |      |      |
| ΔT Axial                                                                                 | 0.5                           |      |      |      |      |      |      |      |      |      |

Certificado No.: 54281

Equipo (Instrument): Cámara ambiental

Fecha de Calibración: 2025-02-21

Marca (Brand): THERMO SCIENTIFIC

| Tabla 1.0: Lecturas de los sensores durante desplazamiento en la zona de trabajo @ 80 %HR |                                |    |    |    |    |    |    |    |    |    |
|-------------------------------------------------------------------------------------------|--------------------------------|----|----|----|----|----|----|----|----|----|
| Tiempo<br>(hh:mm:ss)                                                                      | Lectura del Patrón °C @ 80 %HR |    |    |    |    |    |    |    |    |    |
|                                                                                           | PC                             | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 |
| 11:54:12 AM                                                                               | 80                             | 80 | 78 | 78 | 77 | 80 | 80 | 81 | 78 | 78 |
| 11:55:12 AM                                                                               | 80                             | 80 | 78 | 78 | 77 | 80 | 80 | 80 | 78 | 78 |
| 11:56:12 AM                                                                               | 80                             | 80 | 78 | 78 | 77 | 80 | 80 | 80 | 78 | 78 |
| 11:57:12 AM                                                                               | 80                             | 80 | 78 | 78 | 77 | 80 | 80 | 80 | 78 | 78 |
| 11:58:12 AM                                                                               | 80                             | 80 | 78 | 78 | 77 | 80 | 80 | 80 | 78 | 78 |
| 11:59:12 AM                                                                               | 80                             | 80 | 78 | 78 | 77 | 80 | 80 | 80 | 78 | 78 |
| 12:00:12 PM                                                                               | 80                             | 80 | 78 | 78 | 77 | 80 | 80 | 80 | 78 | 78 |
| 12:01:12 PM                                                                               | 80                             | 80 | 78 | 78 | 77 | 80 | 79 | 80 | 78 | 78 |
| 12:02:12 PM                                                                               | 80                             | 79 | 78 | 78 | 76 | 80 | 79 | 80 | 78 | 78 |
| 12:03:12 PM                                                                               | 80                             | 79 | 78 | 78 | 76 | 80 | 79 | 80 | 78 | 78 |
| 12:04:12 PM                                                                               | 80                             | 79 | 78 | 77 | 76 | 80 | 79 | 80 | 78 | 78 |
| 12:05:12 PM                                                                               | 80                             | 79 | 78 | 77 | 76 | 80 | 79 | 80 | 78 | 78 |
| 12:06:12 PM                                                                               | 80                             | 79 | 78 | 77 | 76 | 80 | 79 | 80 | 78 | 78 |
| 12:07:12 PM                                                                               | 80                             | 79 | 78 | 77 | 76 | 80 | 79 | 80 | 77 | 78 |
| 12:08:12 PM                                                                               | 80                             | 79 | 78 | 77 | 76 | 80 | 79 | 80 | 77 | 78 |
| 12:09:12 PM                                                                               | 80                             | 79 | 77 | 77 | 76 | 80 | 79 | 80 | 77 | 77 |
| 12:10:12 PM                                                                               | 80                             | 79 | 77 | 77 | 76 | 80 | 79 | 80 | 77 | 77 |
| 12:11:12 PM                                                                               | 80                             | 79 | 77 | 77 | 76 | 80 | 79 | 80 | 77 | 77 |
| 12:12:12 PM                                                                               | 80                             | 79 | 77 | 77 | 76 | 80 | 79 | 80 | 77 | 77 |
| 12:13:12 PM                                                                               | 80                             | 79 | 77 | 77 | 76 | 80 | 79 | 80 | 77 | 77 |
| 12:14:12 PM                                                                               | 80                             | 79 | 77 | 77 | 76 | 80 | 79 | 80 | 77 | 77 |
| 12:15:12 PM                                                                               | 80                             | 79 | 77 | 77 | 76 | 79 | 79 | 80 | 77 | 77 |
| 12:16:12 PM                                                                               | 80                             | 79 | 77 | 77 | 76 | 79 | 79 | 80 | 77 | 77 |
| 12:17:12 PM                                                                               | 80                             | 79 | 77 | 76 | 75 | 79 | 79 | 80 | 77 | 77 |
| Promedio                                                                                  | 80                             | 79 | 78 | 77 | 76 | 80 | 79 | 80 | 78 | 77 |
| Desviación                                                                                | 0                              | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| Max                                                                                       | 80                             | 80 | 78 | 78 | 77 | 80 | 80 | 81 | 78 | 78 |
| Min                                                                                       | 80                             | 79 | 77 | 76 | 75 | 79 | 79 | 80 | 77 | 77 |
| ΔT Est.                                                                                   | 1.4                            |    |    |    |    |    |    |    |    |    |
| ΔT Radial                                                                                 | 2.0                            |    |    |    |    |    |    |    |    |    |
| ΔT Axial                                                                                  | 2.9                            |    |    |    |    |    |    |    |    |    |