## Thermometry, Portugal, IPQ (Instituto Portugues da Qualidade)

| Calibration or Measurement Services | | | Measurand Level or Range | | | Measurement Conditions/Independent variables | | Expanded Uncertainty | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quantity | Instrument or artifact | Instrument Type or Method | Minimum value | Maximum value | units | Parameter | Specifications | Value | Units | Coverage Factor | Level of Confidence | Is the expanded uncertainty a relative one? | Comments |
| Temperature | Triple point Argon | Comparison with a cell | -189.3442 | -189.3442 | °C | Ambient temperature | 20 ºC | 0.001 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Triple point Mercury | Comparison with a cell | -38.8344 | -38.8344 | °C | Ambient temperature | 20 ºC | 0.0005 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Melting point Gallium | Comparison with a cell | 29.7646 | 29.7646 | °C | Ambient temperature | 20 ºC | 0.0005 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Freezing point Indium | Comparison with a cell | 156.5985 | 156.5985 | °C | Ambient temperature | 20 ºC | 0.0021 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Freezing point Tin | Comparison with a cell | 231.928 | 231.928 | °C | Ambient temperature | 20 ºC | 0.0015 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Freezing point Zinc | Comparison with a cell | 419.527 | 419.527 | °C | Ambient temperature | 20 ºC | 0.002 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Freezing point Aluminium | Comparison with a cell | 660.323 | 660.323 | °C | Ambient temperature | 20 ºC | 0.005 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Standard Platinum Resistance Thermometers (SPRTs) | Triple point Argon | -189.3442 | -189.3442 | °C | Ambient temperature | 20 ºC | 0.001 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Standard Platinum Resistance Thermometers (SPRTs) | Triple point Mercury | -38.8344 | -38.8344 | °C | Ambient temperature | 20 ºC | 0.0006 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Standard Platinum Resistance Thermometers (SPRTs) | Melting point Gallium | 29.7646 | 29.7646 | °C | Ambient temperature | 20 ºC | 0.0006 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Standard Platinum Resistance Thermometers (SPRTs) | Freezing point Indium | 156.5985 | 156.5985 | °C | Ambient temperature | 20 ºC | 0.0022 | °C | 2 | 95% | No | Approved on 18 May 2004 |

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| Calibration or Measurement Services | | | Measurand Level or Range | | | Measurement Conditions/Independent variables | | Expanded Uncertainty | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Quantity** | **Instrument or artifact** | **Instrument Type or Method** | **Minimum value** | **Maximum value** | **units** | **Parameter** | **Specifications** | **Value** | **Units** | **Coverage Factor** | **Level of Confidence** | **Is the expanded uncertainty a relative one?** | **Comments** |
| Temperature | Standard Platinum Resistance Thermometers (SPRTs) | Freezing point Tin | 231.928 | 231.928 | °C | Ambient temperature | 20 ºC | 0.002 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Standard Platinum Resistance Thermometers (SPRTs) | Freezing point Zinc | 419.527 | 419.527 | °C | Ambient temperature | 20 ºC | 0.003 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | SPRTs and long-stem HTSPRTs | Freezing point Aluminium | 660.323 | 660.323 | ºC | Ambient temperature | 20 ºC | 0.007 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Long-stem HTSPRTs | Freezing point Silver | 961.78 | 961.78 | °C | Ambient temperature | 20 ºC | 0.015 | °C | 2 | 95% | No | Approved on 18 May 2004 |
| Temperature | Standard radiation thermometer | Calibration at Copper freezing point | 962 | 2500 | °C | Working wavelength | 652 nm and 958 nm | 0.0015 $t_{90}$, $t_{90}$ temperature in °C | °C | 2 | 95% | No | Approved on 18 May 2004 |