

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Reference Standard used in calibration	
Quantity/ Class	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?	Standard	Source of traceability
Temperature	Long Stem Platinum Resistance Thermometer	Water triple point	0.01	0.01	°C	Temperature	22 °C ± 3 °C	0.60	mK	2	95%	No	Water cell	PTB,NIST
						Relative humidity	50% RH ± 15% RH							
Temperature	Long Stem Platinum Resistance Thermometer	Mercury triple point	-38.8344	-38.8344	°C	Temperature	22 °C ± 3 °C	1.00	mK	2	95%	No	Mercury cell	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Long Stem Platinum Resistance Thermometer	Gallium melting point	29.7646	29.7646	°C	Temperature	22 °C ± 3 °C	1.08	mK	2	95%	No	Gallium cell	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Long Stem Platinum Resistance Thermometer	Tin freezing point	231.928	231.928	°C	Temperature	22 °C ± 3 °C	2.67	mK	2	95%	No	Tin slim cell	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Long Stem Platinum Resistance Thermometer	Zinc freezing point	419.527	419.527	°C	Temperature	22 °C ± 3 °C	3.44	mK	2	95%	No	Zinc slim cell	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Platinum Resistance Thermometer	Ice point bath	0	0	°C	Temperature	22 °C ± 3 °C	0.013	°C	2	95%	No	Ice point bath	INM
						Relative humidity	50% RH ± 15% RH							
Temperature	Platinum Resistance Thermometer	Comparison in stirred ethanol bath	-80	0	°C	Temperature	22 °C ± 3 °C	0.056	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Platinum Resistance Thermometer	Comparison in stirred water and oil baths	0	150	°C	Temperature	22 °C ± 3 °C	0.044	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Platinum Resistance Thermometer	Comparison in metal block furnace	50	100	°C	Temperature	22 °C ± 3 °C	0.120	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							

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Temperature	Platinum Resistance Thermometer	Comparison in metal block furnace	100	200	°C	Temperature	22 °C ± 3 °C	0.22	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Platinum Resistance Thermometer	Comparison in metal block furnace	200	300	°C	Temperature	22 °C ± 3 °C	0.32	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Platinum Resistance Thermometer	Comparison in metal block furnace	300	419.5	°C	Temperature	22 °C ± 3 °C	0.44	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Thermocouples: noble metal, (Types S, R and B)	Comparison ice point and metal tube & block furnace	0	400	°C	Temperature	22 °C ± 3 °C	0.12 to 1.2	°C	2	95%	No	Noble metal T/C	INM, PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Thermocouples: noble metal, (Types S, R and B)	Comparison metal tube & block furnace	400	800	°C	Temperature	22 °C ± 3 °C	1.2 to 2.4	°C	2	95%	No	Noble metal T/C	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Thermocouples: noble metal, (Types S, R and B)	Comparison metal tube & block furnace	800	1200	°C	Temperature	22 °C ± 3 °C	2.4 to 3.3	°C	2	95%	No	Noble metal T/C	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.05 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	Temperature	22 °C ± 3 °C	0.048	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	Temperature	22 °C ± 3 °C	0.049	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							

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Quantity/ Class	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?	Standard	Source of traceability
Temperature	Liquid-in-Glass thermometers: 0.2 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	Temperature	22 °C ± 3 °C	0.056	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.5 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	Temperature	22 °C ± 3 °C	0.092	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	Temperature	22 °C ± 3 °C	0,17	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.05 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	5	80	°C	Temperature	22 °C ± 3 °C	0.037	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.1 °C graduation	Comparison in stirred liquid bath	5	80	°C	Temperature	22 °C ± 3 °C	0.039	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.2 °C graduation	Comparison in stirred liquid bath	5	80	°C	Temperature	22 °C ± 3 °C	0.048	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.5 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	5	80	°C	Temperature	22 °C ± 3 °C	0.089	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	5	80	°C	Temperature	22 °C ± 3 °C	0.17	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.05 °C graduation	Comparison in stirred liquid bath	80	150	°C	Temperature	22 °C ± 3 °C	0.053	°C	2	95%	No	SPRTs	PTB

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Quantity/ Class	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?	Standard	Source of traceability
	Total immersion, Mercury					Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	Temperature	22 °C ± 3 °C	0.054	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.2 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	Temperature	22 °C ± 3 °C	0.061	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.5 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	Temperature	22 °C ± 3 °C	0.096	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	Temperature	22 °C ± 3 °C	0.17	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.02 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	16	24	°C	Temperature	22 °C ± 3 °C	0.013	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Liquid-in-Glass thermometers: 0.01 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-1	1	°C	Temperature	22 °C ± 3 °C	0.013	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Digital System Thermometers (Resistance thermometer)	Ice point bath	0	0	°C	Temperature	22 °C ± 3 °C	0.013	°C	2	95%	No	Ice point bath	INM
						Relative humidity	50% RH ± 15% RH							
Temperature	Digital System Thermometers (Resistance thermometer)	Comparison in stirred ethanol bath	-80	0	°C	Temperature	22 °C ± 3 °C	0.056	°C	2	95%	No	SPRTs	PTB

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							50% RH ± 15% RH							
Temperature	Digital System Thermometers (Resistance thermometer)	Comparison in stirred water and oil baths	0.00	150	°C	Temperature	22 °C ± 3 °C	0.044	°C	2	95%	No	SPRTs	PTB
							50% RH ± 15% RH							
Temperature	Digital System Thermometers (Resistance thermometer)	Comparison in metal block furnace	50	100	°C	Temperature	22 °C ± 3 °C	0.12	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Digital System Thermometers (Resistance thermometer)	Comparison in metal block furnace	100	200	°C	Temperature	22 °C ± 3 °C	0.22	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Digital System Thermometers (Resistance thermometer)	Comparison in metal block furnace	200	300	°C	Temperature	22 °C ± 3 °C	0.32	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Digital System Thermometers (Resistance thermometer)	Comparison in metal block furnace	300	419.5	°C	Temperature	22 °C ± 3 °C	0.44	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Digital System Thermometers (Thermocouple)	Comparison in stirred liquid bath and metal block furnace	-80	419.5	°C	Temperature	22 °C ± 3 °C	0.4	°C	2	95%	No	SPRTs	PTB
						Relative humidity	50% RH ± 15% RH							
Temperature	Digital System Thermometers (Thermocouple)	Comparison in stirred liquid bath and metal block furnace	600	1200	°C	Temperature	22 °C ± 3 °C	1.8 to 3.3	°C	2	95%	No	SPRTs	PTB

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						Relative humidity	50% RH ± 15% RH							
Humidity	Relative Humidity Sensors	Chilled mirror hygrometer and two pressure humidity generator at 20 °C and Patm Bogota	12	85	%RH	Temperature	22 °C ± 3 °C	1.1	% RH	2	95%	No	Chilled mirror hygrometer and two pressure humidity generator	PTB, INM
						Relative humidity	50% RH ± 15% RH							
Temperature	Thermohygrometers: temperature measurement This measurement is independent from Relative Humidity measurement.	Comparison in climatic chamber	0	70	°C	Temperature	22 °C ± 3 °C	0.2	°C	2	95%	No	Digital System Thermometers (PRT sensors)	INM
						Relative humidity	50% RH ± 15% RH							
Humidity	Dew point hygrometer	Direct measurement	-10	20	°C	Temperature	22 °C ± 3 °C	0.1	°C	2	95%	No	Two pressure humidity generator	INM
						Relative humidity	50% RH ± 15% RH							

Métodos no normalizados reconocidos internacionalmente