

INM - Instituto Nacional de Metrología

Quantity: Temperature and Humidity

Calibration and Measurement Capability (CMC) - Temperature and humidity Laboratory - INM Declarations NVLAP -200947-0

Calibration or Measurement Service			Measurand Level or Range			Expanded Uncertainty					Reference Standard used in calibration	
Quantity/Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	Standard	Source of traceability
Temperature	Platinum Resistance Thermometer	Ice point bath	0	0	°C	0.013	°C	2	95%	No	Ice point bath	INM
Temperature	Platinum Resistance Thermometer	Comparison in stirred ethanol bath	-80	0	°C	0.072	°C	2	95%	No	SPRTs	PTB
Temperature	Platinum Resistance Thermometer	Comparison in stirred water and oil baths	0,00	150	°C	0.044	°C	2	95%	No	SPRTs	PTB
Temperature	Platinum Resistance Thermometer	Comparison in metal block furnace	50	100	°C	0.120	°C	2	95%	No	SPRTs	PTB
Temperature	Platinum Resistance Thermometer	Comparison in metal block furnace	100	200	°C	0.220	°C	2	95%	No	SPRTs	PTB
Temperature	Platinum Resistance Thermometer	Comparison in metal block furnace	200	300	°C	0.320	°C	2	95%	No	SPRTs	PTB
Temperature	Platinum Resistance Thermometer	Comparison in metal block furnace	300	419.5	°C	0.440	°C	2	95%	No	SPRTs	PTB
Temperature	Thermocouples: noble metal, (Types S, R and B)	Comparison Ice point and metal tube & block furnace	0	400	°C	0.12 to 1.2	°C	2	95%	No	Noble metal T/C	INM, PTB
Temperature	Thermocouples: noble metal, (Types S, R and B)	Comparison metal tube & block furnace	400	800	°C	1.2 to 2.4	°C	2	95%	No	Noble metal T/C	PTB
Temperature	Thermocouples: noble metal, (Types S, R and B)	Comparison metal tube & block furnace	800	1200	°C	2.4 to 3.3	°C	2	95%	No	Noble metal T/C	PTB
Temperature	Liquid-in-Glass thermometers: 0.05 °C graduation	Comparison in stirred liquid bath	-38	5	°C	0.048	°C	2	95%	No	SPRTs	PTB

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	Total immersion, Mercury											
Temperature	Liquid-in-Glass thermometers: 0.1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	0.049	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.2 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	0.056	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.5 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	0.092	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-38	5	°C	0,17	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.05 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	5	80	°C	0.037	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.1 °C graduation	Comparison in stirred liquid bath	5	80	°C	0.039	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.2 °C graduation	Comparison in stirred liquid bath	5	80	°C	0.048	°C	2	95%	No	SPRTs	PTB

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Quantity/Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	Standard	Source of traceability
Temperature	Liquid-in-Glass thermometers: 0.5 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	5	80	°C	0.089	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	5	80	°C	0.17	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.05 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	0.053	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	0.054	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.2 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	0.061	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.5 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	0.096	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 1 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	80	150	°C	0.17	°C	2	95%	No	SPRTs	PTB

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Quantity/Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	Standard	Source of traceability
Temperature	Liquid-in-Glass thermometers: 0.02 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	16	24	°C	0.013	°C	2	95%	No	SPRTs	PTB
Temperature	Liquid-in-Glass thermometers: 0.01 °C graduation Total immersion, Mercury	Comparison in stirred liquid bath	-1	1	°C	0.013	°C	2	95%	No	SPRTs	PTB
Temperature	Digital System Thermometers (PRT sensor)	Ice point bath	0	0	°C	0.013	°C	2	95%	No	Ice point bath	INM
Temperature	Digital System Thermometers (PRT sensor)	Comparison in stirred ethanol bath	-80	0	°C	0.072	°C	2	95%	No	SPRTs	PTB
Temperature	Digital System Thermometers (PRT sensor)	Comparison in stirred water and oil baths	0.00	150	°C	0.044	°C	2	95%	No	SPRTs	PTB
Temperature	Digital System Thermometers (PRT sensor)	Comparison in metal block furnace	50	100	°C	0.120	°C	2	95%	No	SPRTs	PTB
Temperature	Digital System Thermometers (PRT sensor)	Comparison in metal block furnace	100	200	°C	0.220	°C	2	95%	No	SPRTs	PTB
Temperature	Digital System Thermometers (PRT sensor)	Comparison in metal block furnace	200	300	°C	0.320	°C	2	95%	No	SPRTs	PTB
Temperature	Digital System Thermometers (PRT sensor)	Comparison in metal block furnace	300	419.5	°C	0.440	°C	2	95%	No	SPRTs	PTB
Temperature	Digital System Thermometers (base-metal thermocouple sensor)	Comparison in stirred liquid bath and metal block furnace	-80	250	°C	0.80	°C	2	95%	No	SPRTs	PTB

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Humidity	Relative Humidity (Capacitive hygrometers)	Chilled mirror hygrometer and Two pressure humidity generator	12	85	%RH	1.7 to 2.5	% RH	2	95%	No	Chilled mirror hygrometer and Two pressure humidity generator	PTB, INM
Temperature	Thermohygrometers : temperature measurement This measurement is independent from Relative Humidity measurement.	Comparison in climatic chamber	0	70	°C	0.2	°C	2	95%	No	Digital System Thermometers (PRT sensors)	INM

http://kcdb.bipm.org/appendixC/country_list_search.asp?CountSelected=CO&type=T

<https://www-s.nist.gov/nis/index.cfm?event=directory.detail&labid=678&programId=0&csrfToken=89C513ED42B12D9C3C82539BBE5B1C27C77EEA2>

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