

**Laboratory**                      **Tempsens Calibration Centre, A Division of Tempsens Instruments (I) Pvt. Ltd., B-188 A, M.I.A., Road No. 5, Udaipur, Rajasthan**  
**Accreditation Standard**    **ISO/IEC 17025: 2005**  
**Certificate Number**         **CC-2840 (In lieu of C-0321)**                      **Page**         **1 of 5**  
**Validity**                            **25.10.2018 to 24.10.2020**                      **Last Amended on**    -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b><u>THERMAL CALIBRATION</u></b>				
<b>I.</b>	<b>TEMPERATURE</b>			
1.	Contact Thermometry RTD, Thermocouples, with or without Temperature Indicator/ Recorder / Controller & Digital Thermometer <sup>§</sup>	Approx (-) 196 °C	0.05 °C	Using digital thermometer & SPRT with LN2 comparator
		(-)80 °C to 0 °C	0.03 °C	Using digital thermometer & SPRT with Liquid Bath
		0 °C to 250 °C	0.04 °C	Using digital thermometer & SPRT with Liquid Bath
		250 °C to 650 °C	0.12 °C	Using digital thermometer & SSPRT with Dry Block Furnace
		650 °C to 1200 °C	1.30 °C	Using digital thermometer & Thermocouple with Dry Block Furnace
		1200 °C to 1600 °C	2.60 °C	Using digital thermometer & Thermocouple with Dry Block Furnace

**Vishal Shukla**  
**Convenor**

**Avijit Das**  
**Program Manager**

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
2.	Non Contact Thermometry & Infrared Thermometers, Pyrometers, Thermal Imagers <sup>\$</sup>	0 °C to 250 °C	1.50 °C	Using Digital Thermometer & PRT with BB Source
		250 °C to 500 °C	2.40 °C	Using Digital Thermometer & PRT with BB Source
		500 °C to 1500 °C	2.50 °C	Using Pyrometer with Black Body Source
		1500 °C to 1700 °C	3.20 °C	Using Pyrometer with Black Body Source
		1700 °C to 2700 °C	4.00 °C	Using Pyrometer with Black Body Source
		2700 °C to 2900 °C	4.00 °C	Using Pyrometer with Black Body Source

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
3.	Calibration of SPRT, SSPRT, PRT, Thermocouple at Fixed Point of <sup>s</sup> Triple Point of Water	0.01°C	3.8 m°C	Using Resistance Bridge & SPRT with TPW Cell & Maintenance Apparatus
	Melting Point of Gallium	29.7646°C	6.5 m°C	Using Resistance Bridge & SPRT with Ga Cell & Maintenance Apparatus
	Melting Point of Tin	231.928°C	6.5 m°C	Using Resistance Bridge & SPRT with Sn Cell & Maintenance Apparatus
	Melting Point of Zinc	419.527°C	7.1 m°C	Using Resistance Bridge & SPRT with Zn Cell & Maintenance Apparatus
	Melting Point of Aluminum	660.323°C	7.5 m°C	Using Resistance Bridge & SPRT with Al Cell & Maintenance Apparatus
	Calibration of Thermocouple at Secondary Fixed Point of Melting Point of <sup>s</sup> Gold	1064.18 °C	0.72°C	Using Pure Gold Wire, Furnace & 6.5 DMM ( Wire Bridge Method )
	Melting Point of Palladium	1554.8 °C	0.83°C	Using Pure Gold Wire, Furnace & 6.5 DMM (Wire Bridge Method )

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
4.	Temperature Of Contact Thermometry Type Sensor* ( RTD's, Thermocouples, With Or Without Indicator, Recorder, Controller & Digital Thermometer )	(-) 25°C to 0 °C	0.07 °C	Using digital thermometer & SSPRT with Dry Block
		0°C to 140°C	0.04°C	Using digital thermometer & SSPRT with Dry Block
		140°C to 250°C	0.09 °C	Using digital thermometer & SSPRT with Liquid Bath
		250°C to 650°C	0.12 °C	Using digital thermometer & SSPRT with Dry Block Furnace
		650°C to 1200°C	1.30 °C	Using digital thermometer & Thermocouple with Dry Block Furnace
5.	Non Contact Thermometry Infrared Thermometers, Pyrometers *	0°C to 250°C	1.50 °C	Using PRT with BB Furnace
		250°C to 500°C	2.40 °C	Using PRT with BB Furnace
		500°C to 1200°C	2.5 °C	Using Pyrometer with Tempens BB Furnace
6.	Calibration of Oven, Furnaces, Chambers *	(-)80°C to 200°C	2.8 °C	Using 9 nos. of PRT with Multichannel Datalogger
		200°C to 1200°C	4.1 °C	Using 9 nos. of T/C with Multichannel Datalogger

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
7.	Temperature Indicators with sensor of temperature Baths, Furnaces, Ovens #	(-)80°C to 650°C	0.20 °C	Using digital thermometer & SSPRT
		650°C to 1200°C	1.70 °C	Using digital thermometer & Thermocouple
		1200°C to 1600°C	3.0 °C	Using digital thermometer & Thermocouple
8.	Temperature Indicators with sensor of Black Bodies Furnaces #	0°C to 1700°C	3.0 °C	Using master Pyrometer
9.	Calibration of Black Body Furnace #	0°C to 500°C	2.3 °C	Using Master Pyrometer
		500°C to 1700°C	5.2 °C	

\* Measurement Capability is expressed as an uncertainty (±) at a confidence probability of 95%

§ Only in Permanent Laboratory

\* Only for Site Calibration

# The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.

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