



**National Voluntary  
Laboratory Accreditation Program**



**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005**

**Insko Metrology, Inc.**  
10434 N.W. 31st Terrace  
Miami, FL 33172  
Mr. Denio Hernandez Osorio  
Phone: 305-994-8031 Fax: 305-994-7365  
E-mail: denio@insco.us

**CALIBRATION LABORATORIES**

**NVLAP LAB CODE 200508-0**  
Revised 2008-05-21

*NVLAP Code:* 20/A01                      ANSI/NCSL Z540-1-1994; Part 1                      Compliant

**MECHANICAL**

*NVLAP Code:* 20/M08  
Mass

<i>Range</i>	<i>Best Uncertainty (±) in mg <sup>note 1</sup></i>	<i>Remarks</i>
50 kg	15	Echelon I
30 kg	13	Echelon I
25 kg	13	Echelon I
20 kg	5.5	Echelon I
10 kg	1.5	Echelon I
5 kg	0.79	Echelon I
3 kg	0.41	Echelon I
2 kg	0.39	Echelon I
1 kg	0.060	Echelon I
500 g	0.035	Echelon I
300 g	0.033	Echelon I
200 g	0.023	Echelon I
100 g	0.022	Echelon I
50 g	0.013	Echelon I
30 g	0.0095	Echelon I
20 g	0.0072	Echelon I

2008-04-01 through 2009-03-31

*Effective dates*

*Sally S. Bruce*

*For the National Institute of Standards and Technology*



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10 g	0.0066	Echelon I
5 g	0.0037	Echelon I
3 g	0.0030	Echelon I
2 g	0.0024	Echelon I
1 g	0.0015	Echelon I
0.500 g	0.0017	Echelon I
0.300 g	0.0012	Echelon I
0.200 g	0.00076	Echelon I
0.100 g	0.00074	Echelon I
0.050 g	0.00071	Echelon I
0.030 g	0.00070	Echelon I
0.020 g	0.00069	Echelon I
0.010 g	0.00071	Echelon I
0.005 g	0.00063	Echelon I
0.003 g	0.00061	Echelon I
0.002 g	0.00050	Echelon I
0.001 g	0.00041	Echelon I
50 kg	18	Echelon II
30 kg	14	Echelon II
25 kg	14	Echelon II
20 kg	7.4	Echelon II
10 kg	1.5	Echelon II
5 kg	0.80	Echelon II
3 kg	0.42	Echelon II
2 kg	0.41	Echelon II
1 kg	0.061	Echelon II
500 g	0.037	Echelon II
300 g	0.034	Echelon II
200 g	0.024	Echelon II
100 g	0.023	Echelon II
50 g	0.015	Echelon II
30 g	0.012	Echelon II
20 g	0.010	Echelon II

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10 g	0.010	Echelon II
5 g	0.0043	Echelon II
3 g	0.0036	Echelon II
2 g	0.0030	Echelon II
1 g	0.0018	Echelon II
0.500 g	0.0021	Echelon II
0.300 g	0.0014	Echelon II
0.200 g	0.00098	Echelon II
0.100 g	0.00090	Echelon II
0.050 g	0.00079	Echelon II
0.030 g	0.00080	Echelon II
0.020 g	0.00079	Echelon II
0.010 g	0.00073	Echelon II
0.005 g	0.00088	Echelon II
0.003 g	0.00074	Echelon II
0.002 g	0.00061	Echelon II
0.001 g	0.00059	Echelon II

**THERMODYNAMICS**

*NVLAP Code:* 20/ T03  
Laboratory Thermometers

Digital/ Electronic Thermometers

<i>Range</i>	<i>Best Uncertainty (±) in mK</i> <sup>Note 1,4</sup>	<i>Remarks</i>
-196 °C	20	Direct Comparison to PRT
-40 °C	30	Direct Comparison to PRT
-20 °C	25	Direct Comparison to PRT
0 °C	3.8	Direct Comparison to PRT
50 °C	12	Direct Comparison to PRT
100 °C	17	Direct Comparison to PRT
150 °C	25	Direct Comparison to PRT
200 °C	34	Direct Comparison to PRT
400 °C	30	Direct Comparison to PRT

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600 °C 150 Direct Comparison to PRT

Liquid in Glass Thermometers

<i>Range</i>	<i>Best Uncertainty (±) in °C</i> <sup>Note 1</sup>	<i>Remarks</i>
-40 °C	0.034	Direct Comparison to PRT
-20 °C	0.033	Direct Comparison to PRT
0 °C	0.013	Direct Comparison to PRT
50 °C	0.021	Direct Comparison to PRT
100 °C	0.024	Direct Comparison to PRT
150 °C	0.030	Direct Comparison to PRT
200 °C	0.025	Direct Comparison to PRT
400 °C	0.25	Direct Comparison to PRT
600 °C	0.52	Direct Comparison to PRT

**NVLAP Code:** 20/ T07  
Resistance Thermometry- ITS-90

<i>Range</i>	<i>Best Uncertainty (±) in mK</i> <sup>Note 1</sup>	<i>Remarks</i>
-196 °C	7.1	Direct Comparison (LN2) (TP Ar Substitution)
-38.8344 °C	1.3	Fixed Point (TP Hg) <sup>Note 2</sup>
0.01 °C	0.29	Fixed Point (TPW)
156.5985 °C	1.2	Fixed Point (FP In)
231.928 °C	1.2	Fixed Point (FP Sn)
419.527 °C	2.1	Fixed Point (FP Zn)

Resistance Thermometry

-196 °C	7.1	Direct Comparison to SPRT
-40 °C	26	Direct Comparison to SPRT
0.01 °C	0.35	Direct Comparison to SPRT
30 °C	11	Direct Comparison to SPRT
157 °C	21	Direct Comparison to SPRT
232 °C	31	Direct Comparison to SPRT

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420 °C 41 Direct Comparison to SPRT  
 660 °C 42 Direct Comparison to SPRT  
 NVLAP Code: 20/ T08  
 Thermocouples

Range	Best Uncertainty <sup>Notes 1,3</sup>			Remarks
	(±) in $\mu V$	Type S (±) in °C	Type R (±) in °C	
0 °C	4.2	0.78	0.79	Nobel Metal
50 °C	6.5	1.00	1.00	Nobel Metal
100 °C	7.2	0.98	0.96	Nobel Metal
150 °C	8.0	1.00	0.97	Nobel Metal
200 °C	8.2	0.90	0.93	Nobel Metal
400 °C	9.3	0.97	0.90	Nobel Metal
600 °C	10	0.98	0.88	Nobel Metal

1. Represents an expanded uncertainty using a coverage factor,  $k = 2$ , at an approximate level of confidence of 95 %.
2. The temperature of this point is defined by the SPRT.
3. Calibration of used thermocouples may result in larger uncertainties due to increased homogeneity.
4. Digital Readout Thermometers consisting of a thermometer probe and a measurement readout device are calibrated as a unit. The uncertainty of the digital readout device is unknown and must be included by the user of the device.

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