

Thermodynamic Quantities

Humidity Measurements

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Do not ship instruments or standards to the mailing address listed below. Contact the technical staff for the shipping address.

Mailing Addres lational Institute 00 Bureau Dr., Gaithersburg, M Fax: 301/548–02	e of Standards and Technology Stop 8363 D 20899–8363	
Service ID Number	Description of Services	Fee (\$)
36010C	Dew–Point Hygrometers (+25 °C to –15 °C)	5907
36020C	Dew–Point Hygrometers (–70 °C to –15 °C)	<mark>11199</mark>
36030C	Electric Hygrometers	At Cost
36040C	Electrolytic Hygrometers	At Cost
36050C	Aspirated Hygrometers	At Cost
36060C	Pneumatic Bridge Hygrometers	At Cost
36070S	Special Tests of Humidity	At Cost

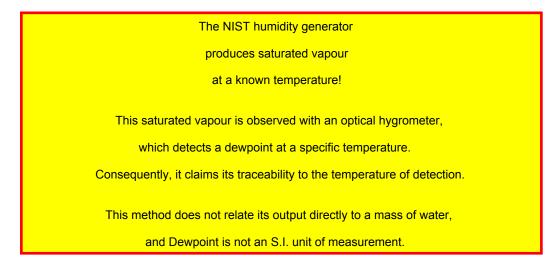
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Hygrometers (36010C-36060C)

NIST provides calibration services for a wide variety of humidity–measuring instruments. Calibrations are performed by subjecting the instrument under test to atmospheres of known moisture content produced by the NIST two-pressure humidity generator.

Table 6.5 illustrates typical NIST uncertainties for measurement of humidity standards with atmospheric air at atmospheric pressures.



Special Tests of Humidity (36070S)

Tests for response time, hysteresis, and stability can be provided upon request.

Table 6.5. NIST Two–Pressure Humidity Generator, Mark 2, Range and Uncertainty

Humidity Parameter	Range	Expanded Uncertainty
	0.0015≤ r _w < 0.005	1.5 % of value
Mixing ratio, r _w	0.005 ≤ r _w < 0.1	1.0 % of value
(g water vapor/kg dry air)	0.1 ≤ r _w < 0.3	0.5 % of value
	0.3 ≤ r _w < 515	0.3 % of value
	3 <u>≤</u> V < 10	1.5 % of value
Volume ratio, V (X 10 ^{–6})	10 ≤ V < 170	1.0 % of value
	170 ≤ V < 500	0.5 % of value
	500 ≤ V < 820 000	0.3 % of value
Dew point temperature,	<mark>−70</mark> ≤ T _d < −35	0.1 °C
<mark>⊤_d (°C)</mark>	$-35 \le T_{d} < +40$	0.04 °C
Deletive humidity	$-55 \le T_{c} \le -40$	3–98 1.5 %
Relative humidity, RH (%) at test	$-40 \le T_{c} < -20$	3–98 0.8 %
chamber temperature, T _c (°C) of:	$-20 \le T_{c} < 0$	3–98 0.2 %

$0 \le T_c < +40$ 3–98 0.2 %

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References—Humidity Measurements

The New NIST Low Frost-Point Humidity Generator, G. E. Scace, P. H. Huang, J. T. Hodges, D. A. Olson and J. R. Whetstone, presented at the 1997 NCSL Workshop and Symp., Atlanta, GA (1997).

Thermodynamic Properties of Moist Air Containing 1000 to 5000 PPMv of Water Vapor, P. H. Huang, NISTIR 5241, 43–51 (Apr. 1993).

NIST Calibration Services for Humidity Measurement, P. H. Huang, NISTIR 4677–A (Superseding NISTIR 4677, Oct. 1991).

National Basis of Accuracy in Humidity Measurements, S. Hasegawa, ISA Trans. 25 (3), 15–24, 1986.

The NBS Two–Pressure Humidity Generator, Mark 2, S. Hasegawa and J. W. Little, J. Res. Nat. Bur. Stand. (U.S.), **81A** (1), 81–88 (Jan.–Feb. 1977).

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Calibration Group, NIST, 100 Bureau Drive, Stop 2300, Gaithersburg, MD 20899-2300 Telephone: 301-975-2092, Fax: 301-869-3548, E-Mail: <u>calibrations@nist.gov</u>

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----- Original Message ----From: Peter Huang <<u>mailto:phuang@nist.gov</u>>
To: paul.ninzatti@manalytical.com
Sent: Tuesday, November 28, 2006 8:22 PM
Subject: FW: Calibrations - Moisture Analyzer

Dear Paul,

We provide calibrations of various hygrometer, but not mass traceability. If your hygrometer is calibrated by NIST, it is then traceable to the NIST standard, to order to know if we can calibrate your hygrometer, please let me know the type of your instrument and the manufacturer.

Best regards,

Peter Huang NIST

-----Original Message-----From: Arnold, Tracy [mailto:tarnold@NIST.GOV] Sent: Monday, November 27, 2006 8:22 AM To: Peter Huang Cc: Calibrations Subject: FW: Calibrations - Moisture Analyzer

Peter,

Can you advise and let this customer know.

Thanks,

Tracy

NIST themselves confirm that they DO NOT offer moisture calibrations with mass traceability!

From: Paul Ninzatti [mailto:paul.ninzatti@manalytical.com] Posted At: Monday, November 27, 2006 8:01 AM Posted To: Calibrations Conversation: Calibrations - Moisture Analyzer Subject: Calibrations - Moisture Analyzer

Dear Madame/Sir, I am looking for some information on certified NIST moisture Standard calibrations for hygrometers. Calibration points of interest (0.5ppm(V), 2.5ppm(V), 7.5ppm(V), 120ppm(V)) all at atmospheric pressure. 1. Mass Traceability 2.Price

Please forward me any appropriate information.

I look forward to your reply

Best Regards, Paul Ninzatti

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