



CERTIFICATE OF ANALYSIS
Complies with ISO Guide 34, ISO Guide 31,
ISO Guide 35, and ISO 9001



TRACEABLE® CERTIFIED REFERENCE MATERIAL

This certificate indicates traceability to standards provided by National Institute of Standards and Technology (NIST) and/or a National Standards Laboratory.

Certificate No.: 4288-7917502

Description: pH Standard

Catalog Number: 06664263, 11784256 **Lot:** CC460490

Certificate Date: August 29, 2016 **Expiration Date:** August 29, 2018

Certified Value: 6.999 pH U = ±0.011 pH (k=2) at 25°C

Certification measurements are performed under ISO Guide 34, A2LA accreditation no. 1750.02. They are traceable to recognized national and international standards via an unbroken chain of comparisons. pH is defined as the negative logarithm of the hydrogen ion activity.

MEASUREMENT: Twelve (12) 100 mL samples were measured from this lot. The pH of each sample was determined using a pH meter and electrode.

UNCERTAINTY: The certified value is given as the average of the measured samples. The reported uncertainty (U) is determined from the measurement variation from sample to sample, change due to shelf life, and uncertainty of the measurement process. The value of uncertainty is multiplied by k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%. Uncertainty is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement".

METHOD: The certified reference material is produced and analyzed by Control Company. The certified reference material is comprised of deionized water, 0.029 mol/kg H2O disodium hydrogen phosphate, 0.021 mol/kg H2O potassium dihydrogen phosphate, and germicide.

Aaron Judice
Aaron Judice, Technical Manager

Nicol Rodriguez
Nicol Rodriguez, Quality Manager

Traceability: Standards and Equipment Used

Description	Serial Number	Cal Due Date	Traceable Reference
Digital Thermometer	102008443	2/19/17	4000-7437656
Reference Material 7.0010 pH	E1210513	10/28/16	105/13
pH Electrode	15293-F18		
pH/Ion-Meter TC-241	658R067-N023		
Laboratory environment conditions: 24.0 °C 60 %RH 1,015 mb(hPa)			

CONTROL COMPANY 12554 Galveston RD Suite B230 Webster TX 77598 USA
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Control Company is an ISO Guide 34:2009 Certified Reference Material (CRM) Producer Accredited by American Association for Laboratory Accreditation (A2LA Certificate No. 1750.02). This certificate fulfills the requirements of ISO Guide 31:2000 (Reference Materials-Contents of Certificates and Labels), ISO Guide 34:2009 "Quality System Guidelines for the Production of Reference Materials", and ISO Guide 35:2006 "Certification of Reference Materials-General and Statistical Principals". Control Company is an ISO/IEC 17025:2005 Calibration Laboratory Accredited by American Association for Laboratory Accreditation (A2LA Certificate No. 1750.01). Control Company is ISO 9001:2008 Certified by DNV GL (Certificate No. CERT-01805-2006-AQ-HOU-RvA). TRACEABLE® is a registered trademark of Control 3 Inc.



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Temperature Correction Information

Use the chart below only for making absolute measurements. That is, measurements without any automatic temperature correction (temperature coefficient set to 0).

pH Temperature Chart for this Lot

	0.0°C	0.1°C	0.2°C	0.3°C	0.4°C	0.5°C	0.6°C	0.7°C	0.8°C	0.9°C
18°C	7.023	7.023	7.022	7.022	7.021	7.021	7.021	7.020	7.020	7.019
19°C	7.019	7.019	7.019	7.018	7.018	7.017	7.017	7.016	7.016	7.016
20°C	7.016	7.015	7.015	7.014	7.014	7.014	7.013	7.013	7.012	7.012
21°C	7.012	7.012	7.011	7.011	7.010	7.010	7.009	7.009	7.009	7.009
22°C	7.009	7.008	7.008	7.007	7.007	7.007	7.007	7.006	7.006	7.005
23°C	7.005	7.005	7.005	7.004	7.004	7.004	7.003	7.003	7.002	7.002
24°C	7.002	7.002	7.001	7.001	7.001	7.000	7.000	7.000	7.000	6.999
25°C	6.999	6.999	6.998	6.998	6.998	6.998	6.997	6.997	6.997	6.996
26°C	6.996	6.996	6.996	6.996	6.995	6.995	6.994	6.994	6.994	6.993
27°C	6.993	6.993	6.993	6.993	6.992	6.992	6.992	6.991	6.991	6.991
28°C	6.991	6.991	6.990	6.990	6.990	6.989	6.989	6.989	6.989	6.989

The above data are derived values based upon IUPAC data (Pure and Applied Chemistry 74, 2169-2200) and data/algorithm obtained using a temperature controlled calibration bath.

Shown on the chart is temperature (in the far left column) in whole degrees. Shown across the top row is temperature in tenths of a degree. Using a thermometer, measure the temperature of this certified reference material. Locate the measured temperature in whole numbers on the far left column. Follow across the row to the temperature in tenths of a degree. At the intersection is the certified reference material value at that specific temperature. Standardize the meter using that value.

Example: Measured temperature is 24.5°C. Find 24°C in the far left column, find the row 0.5°C. Where 24°C and 0.5°C intersect, read the value in pH.

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