

CERTIFICATE OF ANALYSIS

for
Certified Reference Material

Product Description:

Product: Buffer pH 4.01 (Red)

Lot #: 231110A

Item Number: B0470-4.01R

Expires: (1.5 yr) 05/2025

Appearance: Red Liquid

Intended Use: For calibration of analytical instruments and/or validation of analytical methods.

Property Value and Associated Uncertainty:

Actual pH at 25°C: 4.010

Uncertainty is presented as the expanded uncertainty with a coverage factor of 2 ($k=2$)

Uncertainty (U_{CRM}): ± 0.022

and represents the combined uncertainty of characterization, homogeneity, and storage.

Supplemental:

pH values change according to temperature as follows*:

°C	10	20	30	40	50
pH	4.00	4.00	4.01	4.03	4.06

*These values are not certified.

Homogeneity: Solutions are mixed according to in-house procedures. Each batch is individually evaluated for homogeneity before release.

Storage and Handling: Store in an ambient environment (15°C - 30°C). Keep product capped to avoid evaporation, which could alter the certified value.

Metrological Traceability and Measurement Procedure for Defined Measurands:

Exaxol's pH Buffer Certified Reference Materials (CRMs) are metrologically traceable to the International System of Units (SI) through the use of CRMs provided by ISO 17034 accredited CRM producers. Gravimetric measurements are traceable to NIST through balances that are calibrated through an ISO/IEC 17025:2017 accredited company that meets requirements of ANSI/NCSL Z540.1-1994 & ANSI/NCSL Z540.3-2006 subclause 5.3. Balances are periodically verified using weights that are metrologically traceable to NIST through the State of Florida Metrology Laboratory which is accredited by NVLAP Lab Code 200560. Exaxol uses Type 1, Class A, Borosilicate Glass for volumetric glassware and pipettes which are calibrated according to ASTM E542-01. Environmental conditions (temperature and humidity) are monitored with a NIST traceable thermometer and hygrometer.

Exaxol solutions and standards are made in accordance with Exaxol's documented ISO 17034:2016 Quality Management System. All calibration records are maintained on-site. Production records and test reports are maintained and secured in the laboratory's Manufacturing Log, according to lot number.

Approving Officer:



Joseph E Papa, Sr. Chemist



Exaxol is an ISO 17034:2016 Reference Material Producer (RMP) accredited by ANSI National Accreditation Board (ANAB) certificate #: AR-2933).