



PRODUCT INFORMATION

pH Reference Materials /- Buffer Solutions

Calibration laboratory for length, electrical, mechanical, thermodynamic, and analytical measurands
DAR-Registration Number: **DKD-K-06901**

The pH is one of the basic properties of aqueous solutions and biological systems.

For the inspection of pH measuring systems/devices pH reference buffer solutions are required.

The production of such pH reference buffer solutions is basically done with secondary pH reference materials. These secondary pH reference materials serve as basis for the practical pH-scale and are traceable to primary pH reference materials of PTB (for Germany) or the NIST/U.S.A. (internationally).

pH(S) values of secondary pH reference materials/ buffer solutions are determined by accredited calibration laboratories of DKD (Deutscher Kalibrierdienst).

Calibration of pH reference materials

Our DKD calibration laboratory DKD-K-06901 is the only DKD calibration laboratory of Germany ensuring the certification of pH reference materials by metrological traceability to PTB or NIST via a reference standard measuring equipment consisting of 4 electrochemical cells (harned cells, cells without transference) in three sequential measuring units (12 cells).

The far-reaching constructive correspondence of our reference standard measuring equipment to the primary standard measuring equipment of the PTB and the application of the same measuring procedure ensure a reliable traceability to the National Standard.

- Certified pH reference materials, $U= 0,003$ (5°C to 35°C), $U= 0,004$ (>35°C to 50°C)
1.68₀; 4.00₈; 6.86₅; 7.41₆; 9.18₄; 10.01₄ (at 25°C, depending on batch)

Calibration of pH reference buffer solutions, performed by means of:

1. Differential potentiometric analysis with double platinum hydrogen electrode (quasi without transference) after Baucke, measured against pH(PS) values.

- Certified pH reference buffer solutions, $U= 0,003$ (5 °C to 35 °C), $U= 0,004$ (>35 °C to 50 °C)
1.68₀; 4.00₈; 6.86₅; 7.41₆; 9.18₄; 10.01₄ (at 25 °C, depending on batch)
- Certified pH reference buffer solutions, $U= 0,01$ (5 °C to 50 °C)
1.68; 4.01; 6.86; 7.41; 9.18; 10.01 (at 25 °C, depending on batch)

2. Multi-point calibration with glass electrode system

- Certified pH reference buffer solutions, $U= 0,01$ (5 °C to 50 °C)
1.68; 4.01; 6.86; 7.41; 9.18; 10.01 (at 25 °C, depending on batch)
- Certified pH buffer solutions, $U= 0,01$ (5 °C to 50 °C)
4.00; 6.00; 7.00; 8.00; 9.21 (at 25 °C, depending on batch)
- Certified pH buffer solutions, $U= 0,02$ (5 °C to 50 °C)
4.01; 7.00; 9.21; 10.01 (at 25 °C, depending on batch) - **colour coded**

The pH(S) values as well as their dependence on temperature (5 °C to 50 °C) including the expanded measuring uncertainty are given in the DKD Calibration Certificate for each pH reference material/ buffer solution.

Additional information:

The application life of pH reference materials is limited to 3 years provided that the bottles are kept unopened and stored at room temperature.

The pH reference buffer solutions with the given measuring uncertainties are applicable for 6 months provided that the bottles are kept unopened and stored at room temperature.

(Attention: If the pH reference buffer solution 4.01 is seized with funguses it must not be used any more!).

Multiple use of pH reference buffer solutions has to be avoided.