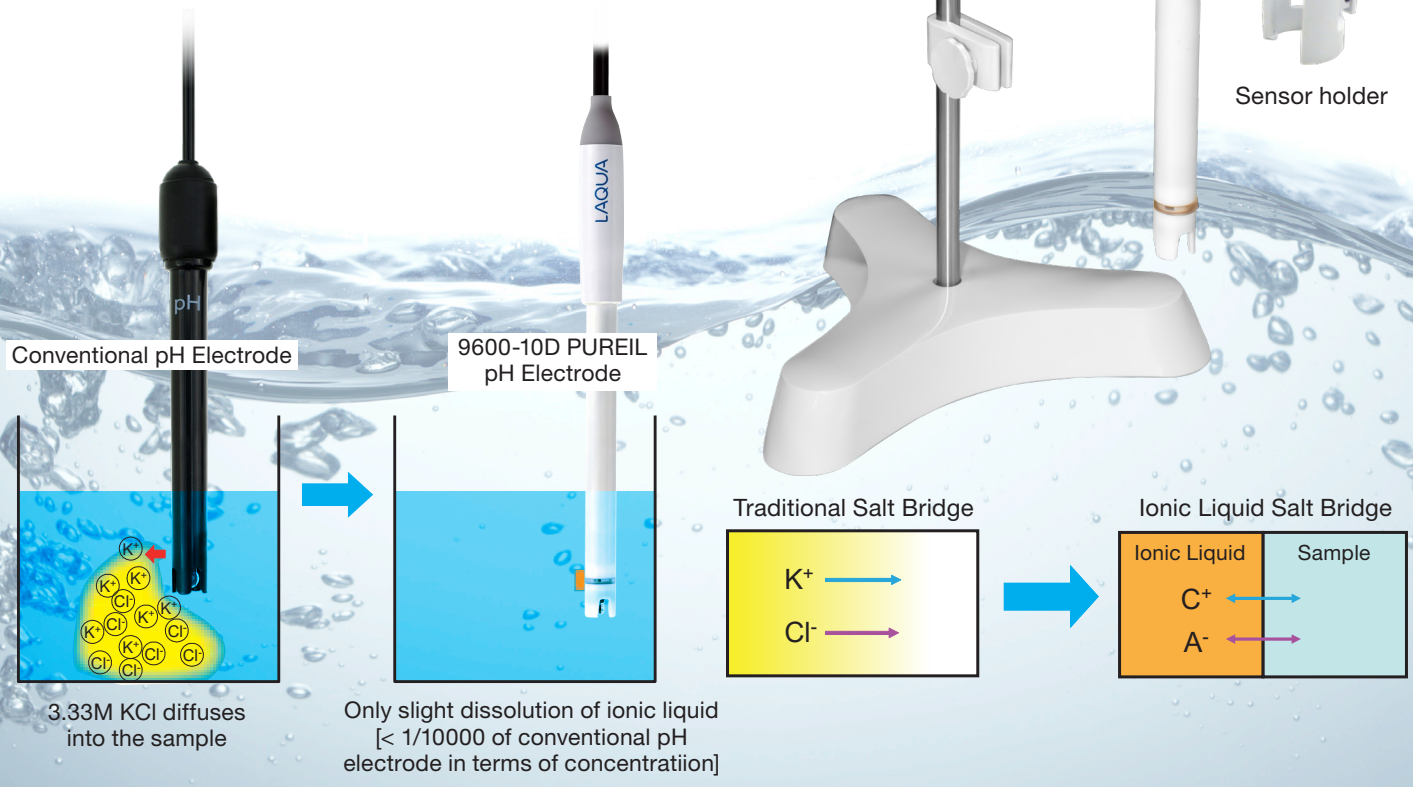
HORIBA Scientific

LAQUA

New 9600-10D PUREIL pH electrode suitable for accurate and fast measurement of low conductivity water

Innovative pH electrode equipped with newly developed gelled ionic liquid for the liquid junction of the reference electrode. Unlike conventional pH electrodes, it does not leak potassium chloride (KCl), which can affect the measurement or pH value of low ionic strength aqueous samples and certain critical solutions making it an excellent choice for such applications.

- ✓ Ideal for low conductivity water (< 100 µS/cm) such as pure water samples (e.g. distilled water, deionized water, rain water, reverse osmosis water, boiler water)
- ✓ Perfect for solutions that react with KCl or contain ions that form precipitates with K^+ or Cl^- such as drug injection solution
- ✓ Only slight dissolution of ionic liquid in sample during measurement
- ✓ Maintenance-free and waterproof
- ✓ Integrated with temperature sensor for automatic temperature compensation
- ✓ Comes with sensor holder for mounting to electrode stand



This product is the result of joint development with Kyoto University as part of the Japan Science and Technology Agency (JST) advanced measurement analysis technology and equipment development program.

Conventional pH electrode utilizes reference electrode with KCl solution as salt bridge electrolyte. KCl leaks into the sample through the liquid junction to complete the electrical circuit during pH measurement. Diffusion of KCl dominates the liquid junction potential.

» In testing low ionic strength aqueous solutions, KCl can contaminate sample resulting in increase in conductivity and change in pH value. Thus, it is difficult to achieve accurate pH measurement in these solutions using conventional pH electrode with KCl salt bridge.

Modern pH electrode like the 9600-10D PUREIL utilizes reference electrode with new salt bridge called ionic liquid (room-temperature molten salt) which serves as point of contact between the reference electrolyte and sample. The cations (C^+) and the anions (A^-) of the ionic liquid partitioned in the sample determine the liquid junction potential difference between reference electrolyte and sample.

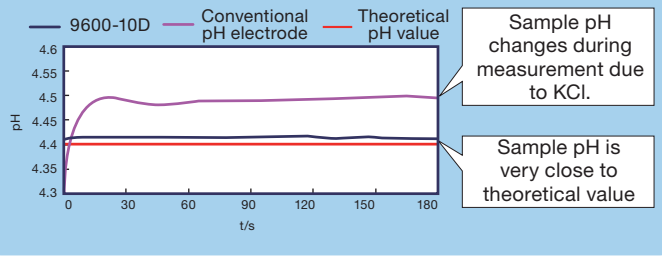
» Sample is not exposed to KCl. Therefore, no KCl contamination. The 9600-10D PUREIL pH electrode shows very stable liquid junction potential, faster response, and accurate pH values in low ionic strength aqueous solutions.

Measurement Examples

Low Conductivity Water

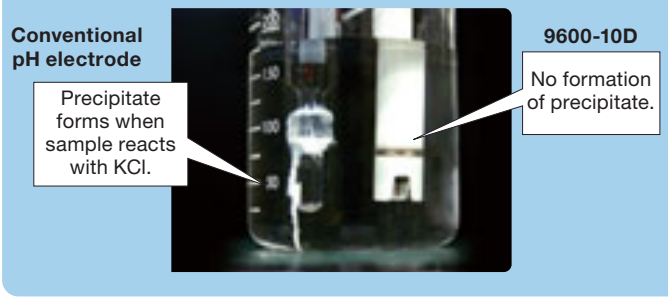
Since there is no concentrated KCl diffusion from the pH electrode, the sample pH value remains unaffected during measurement. Also, since the ionic liquid dissolves quickly, the liquid junction potential stabilizes fast leading to a more reliable and stable pH reading.

Dilute Sufuric Acid: 20 µmol/dm³ (100 µS/cm)



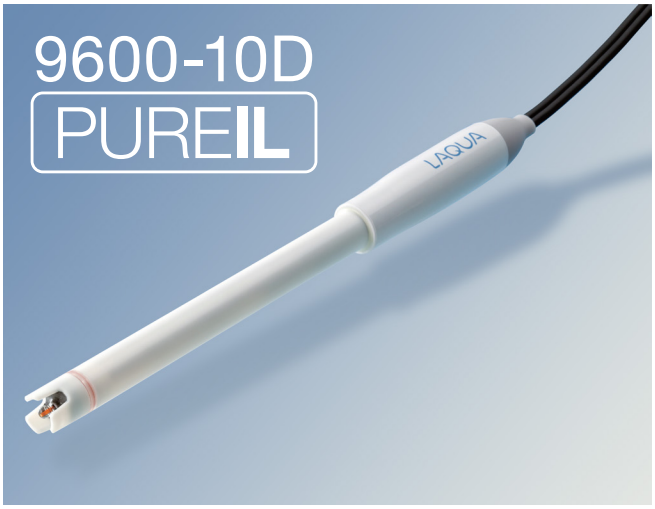
Drug Injection Solution

Solutions that form precipitates with KCl such as drug injection solution can be measured without any adverse reaction.



Please note that the 9600-10D PUREIL pH electrode is not suitable for measuring samples that contain surfactant, heavy metal ions, and organic solvents. For acidic samples, citrate buffer (pH 3.776 at 25°C) is recommended for calibration instead of phthalate buffer (pH 4.01 at 25°C) to achieve a more accurate measurement [< 0.034 pH error].

PUREIL Electrode Specifications



Model	9600-10D
pH Measurement Range	0 – 14
Operating Temperature Range	0 – 40 °C
Storage Temperature Range	0 – 50 °C
Internal Electrode	Ag/AgCl
Liquid Junction	PVDF-HFP, ionic liquid
Liquid Junction Height	Approx. 16mm from the electrode tip
Wetted Materials	Glass, PBT, PVDF-HFP, ionic liquid
Electrode Dimensions	210 mm (L) x 12 mm (Ø)
Cable	1 m

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