

## **Frequently Asked Questions About A-Z pH Pens**

### ***1. How often should I calibrate my pH meter?***

The frequency of calibration depends on your specific application. Here is a recommended approach to determine the appropriate calibration interval:

- a. Calibrate the pH meter on the first day.
- b. On subsequent days, immerse the electrode in the original calibration buffers and record the readings.
- c. If the readings remain within acceptable limits, continue this daily check until the accuracy no longer meets your requirements.

When the readings become unsatisfactory, recalibrate and note the number of days since the initial calibration. For example, if accuracy declines after five days, calibrate every four to five days thereafter.

As the pH electrode ages, repeat this test monthly to reassess the calibration interval.

### ***2. What is the lifespan of a pH probe?***

The lifespan of a pH probe varies depending on factors such as storage conditions, maintenance practices (refer to the user manual), the pH value of the sample, temperature, pressure, and sample type.

Probes used with contaminated samples (e.g., solutions containing particles), subjected to mechanical abrasion, or exposed to high temperatures or pressures may last only a few weeks. In hot alkaline solutions, probes can become damaged within hours. Elevated temperatures also shorten electrode lifespan; for every 25°C increase above 25°C (e.g., testing at 50°C), the lifespan of a general-purpose pH electrode is approximately halved. For optimal longevity, testing at around 25°C is recommended.

### ***3. Why is my pH probe responding slowly or showing drifting readings?***

Slow response or drifting readings may result from:

- a. Contamination of the glass bulb: Deposits such as oil, grease, paint, or dirt can impair performance.
  - o Solution: Rinse the probe with distilled water or refer to the maintenance section of the user manual for cleaning instructions.

- b. End of probe lifespan: The probe may be nearing the end of its functional life.
  - Solution: Contact the supplier from whom you purchased the pH meter to obtain a replacement probe or meter.

#### ***4. Why can't I calibrate my pH probe?***

Calibration issues may arise due to:

- a. Dried-out electrode: If the probe has been stored without sufficient storage solution, it may dry out.
  - Solution: For A-Z pH electrodes, regularly replenish the storage solution to keep the electrode hydrated. A suitable storage solution maintains constant ion activity in the sensing element, ensuring fast response and accurate readings. Temporarily, tap water can be used as a storage solution, or any commercially available pH probe storage solution is acceptable. Distilled water is suitable for cleaning but unsuitable for storage.
- b. If the electrode has dried out, try the following steps to restore it:
  - Immerse the electrode in warm water (approximately 60°C) for 15 minutes to dissolve any dried impurities.
  - Transfer the electrode to a solution containing 4M KCl (4 moles of potassium chloride per litre of solution), initially at 60°C and allow it to cool to room temperature.
- c. End of probe lifespan: The probe may be at the end of its functional life.
  - Solution: Contact the supplier to purchase a replacement pH probe or meter.

#### ***5. How should I store my pH electrode?***

To maintain the condition of the glass sensing element, pH electrodes must be kept hydrated. Allowing the sensing element to dry out will damage the electrode.

A proper storage solution ensures consistent ion activity in the sensing element, promoting rapid response and accurate readings. The recommended storage solution for A-Z electrodes is a 1:1 mixture of 4M KCl and pH 4 buffer. If this is unavailable, tap water can be used temporarily, or any commercially available pH probe storage solution is suitable.

*Important:* Never store a pH electrode in distilled water. While distilled water is ideal for rinsing between samples, it is harmful for storage as it depletes the electrolyte in the reference chamber, damaging the electrode.