

Shelf Life of pH Sensors

Bonaduz, April 20th 2021

The purpose of this letter is to confirm that Hamilton has issued an Engineering Change Order (ECO) to remove the shelf-life statement that currently exists in our process pH manual. This change will occur to alleviate confusion on this topic.

Shelf Life: Why the update?

The words "shelf-life" may imply an expiration date for a product. This is an incorrect association. In fact, pH sensors do not simply die on the shelf waiting to be used.

It is well known that industrial pH sensors lose efficiency when used in applications with varying pH, temperature, and pressure. Fortunately, these changing conditions do not occur in storage. Each pH sensor ships with a protective liquid-filled cap containing an electrolyte matched to the liquid inside the sensor. The fixed ionic strength of the electrolyte ensures very little ion activity at the glass membrane. This detail, combined with the ambient conditions of storage, further prevents loss of efficiency.

Verification

In prolonged storage applications, Hamilton does recommend checking the pH sensor in pH 4 and pH 7 buffer solutions to verify that the sensor meets published specifications. This check is similar to a 2-point buffer calibration and can be performed at the following intervals:

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| 18 months | Polymer & Gel-filled pH sensors (Polilyte Plus, InchTrode, Mecotrode, Polilyte Pro, Polyplast Pro) |
| 12 months | Pre-pressurized pH sensors (EasyFerm Plus, EasyFerm Bio) |

If the sensor slope is 97% or better then the shelf life can be extended another 6 months. This process can be repeated for up to three years from the date of manufacture. Upon request, Hamilton can provide a step-by-step verification process.

Regards,



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Product Manager