HAMILTON

# Liquid Calibration Solutions

## Precision You Can Trust – for pH, ORP, and Conductivity Calibration




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# Calibration Solutions

Calibration is a key component of every analytical process. Hamilton calibration solutions. Through exceptional accuracy and precision, as well as certifications that meet the most stringent standards – don't just set your measurement, they secure your compliance.

**pH Buffers** **ORP Buffers** **Conductivity Standards**

## Never Contaminate Your Buffer Again



Rinse the pH sensor in deionized water

Compress the bottle to fill the calibration chamber

Calibrate the sensor

Dispose the liquid from the calibration chamber and close the bottle

Our patented DuraCal bottle features a built-in calibration chamber. Fresh buffer is isolated from used buffer, preventing contamination and ensuring every calibration is as accurate as the first.




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# Certified Reference Material (CRM)

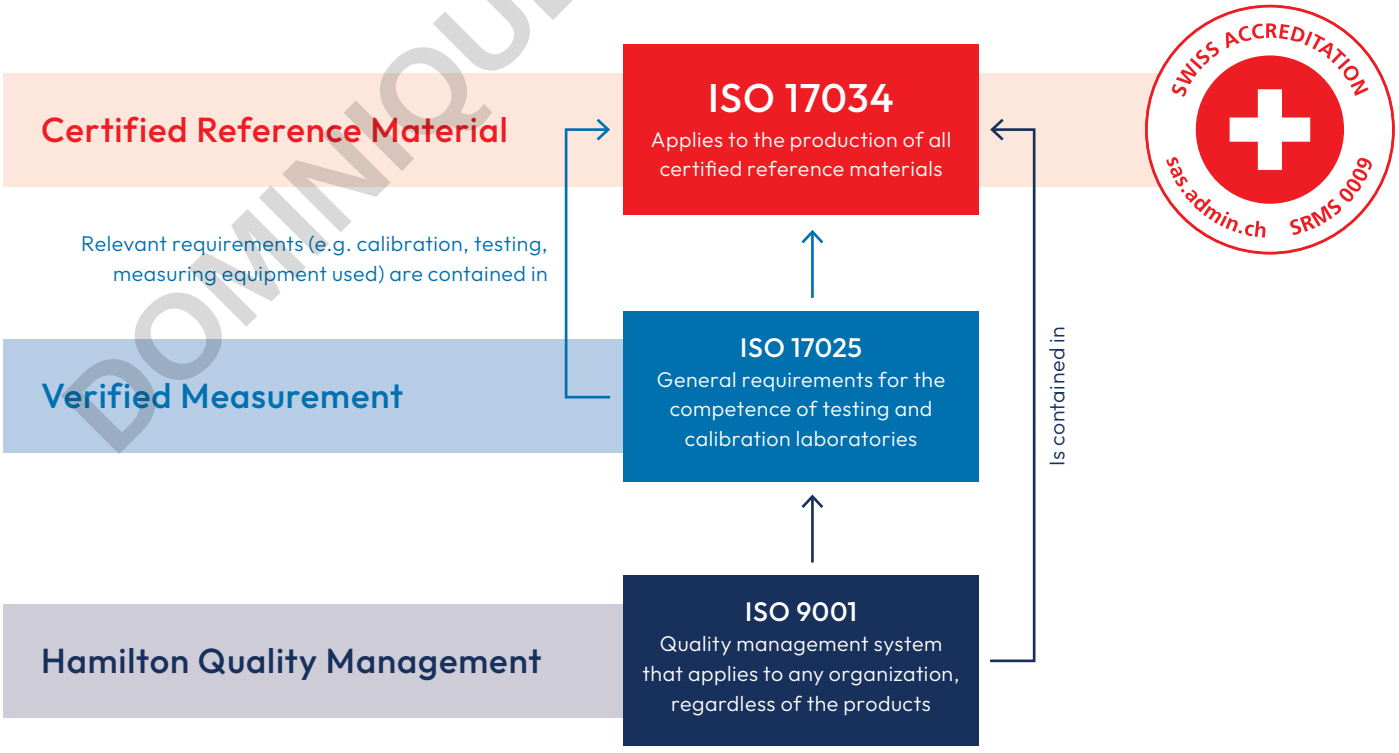
Hamilton is committed to providing products and services that customers can rely on, trust, and use with confidence every day. This is why our buffer production is based on internationally recognized ISO standards.

Our ISO 17034 accreditation, granted by the Swiss Accreditation Service (SAS), demonstrates that our certified reference materials are produced under rigorous quality control, with traceability and reliability built into every step. The production of these materials requires an unbroken chain of comparisons to primary reference materials of the highest metrological quality, such as those provided by NIST and PTB. The measurement laboratories are accredited according to ISO 17025 by DAkkS or DANAK.

These accreditations provide documented assurance that your calibration standards are fully traceable, compliant, and audit-ready, strengthening regulatory confidence and simplifying verification processes.

- **Traceable Accuracy and Stability**
- **Regulatory Compliance and Measurement Confidence**
- **Reduced Audit Effort and Risk**

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# Hamilton Buffers

## Buffers Designed for Compliance and Confidence




Our buffer portfolio delivers best-in-class accuracy of up to ±0.01 pH and outstanding stability of up to five years. Stability is fully documented under realistic conditions, including containers opened for up to 15 hours, ensuring reliable performance in daily laboratory and process environments.

With 14 certified pH values ranging from pH 1.09 to pH 12.00, our buffers cover the complete pH scale from highly acidic through neutral to alkaline. This comprehensive range supports a wide variety of processes and ensures that sensors are always calibrated appropriately for their intended application.
To simplify workflows, especially in biopharma environments where processes rarely operate at a single pH, Hamilton offers pH buffer sets. Each set contains three pH values, ideal for two-point calibration with validation at a third point. This reduces the effort required to source individual buffers and enables faster and more efficient calibration routines.

The buffers are available in up to six container formats, from a convenient 250 mL bottle with integrated calibration chamber to 25 L canisters for higher buffer consumption.

In addition to pH buffers, Hamilton also offers high quality ORP buffers, delivering the same levels of accuracy and stability for reliable redox potential calibration.

**To learn more about**
'How are Hamilton Buffers Different', check this article:

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| pH | Value | Package [L] | REF | Certified Accuracy | Stability (in months) | Norm |
|---|---|---|---|---|---|---|
| | **1.09** | 0.5 | 238271 | ± 0.03 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | **1.68** | 0.5 | 238272 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | **2.00** | 0.5 | 238273 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | | 3 NEW | 10198863 | | | |
| | | 10 | 10117113 | | | |
| | | 25 | 10204498 | | | |
| | **3.06** | 0.5 | 238274 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | **4.01** | 0.25 | 238317 | ± 0.01 pH | 60 | DAkkS/DANAK (ISO 17025) ISO 17034 **CRM** |
| | | 0.5 | 238217 | | | |
| | | 3 x 0.5 | 238917 | | | |
| | | 3 NEW | 10198864 | | | |
| | | 5 | 238332 | | | |
| | | 10 | 238194 | | | |
| | | 25 | 10204497 | | | |
| | **5.00** | 0.5 | 238275 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | **6.00** | 0.5 | 238276 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | **7.00** | 0.25 | 238318 | ± 0.01 pH | 60 | DAkkS/DANAK (ISO 17025) ISO 17034 **CRM** |
| | | 0.5 | 238218 | | | |
| | | 3 x 0.5 | 238918 | | | |
| | | 3 NEW | 10198865 | | | |
| | | 5 | 238333 | | | |
| | | 10 | 238188 | | | |
| | | 25 | 10204496 | | | |
| | **8.00** | 0.5 | 238277 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | **9.00** | 0.5 | 242763 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | **9.21** | 0.25 | 238319 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | | 0.5 | 238219 | | | |
| | | 3 x 0.5 | 238919 | | | |
| | | 10 | 238216 | | | |
| | **10.01** | 0.25 | 238321 | ± 0.02 pH | 60 | DAkkS/DANAK (ISO 17025) |
| | | 0.5 | 238223 | | | |
| | | 3 x 0.5 | 238923 | | | |
| | | 3 NEW | 10198866 | | | |
| | | 10 | 238187 | | | |
| | | 25 | 10204495 | | | |
| | **11.00** | 0.5 | 238278 | ± 0.05 pH | 24 | DAkkS/DANAK (ISO 17025) |
| | **12.00** | 0.5 | 238279 | ± 0.05 pH | 24 | DAkkS/DANAK (ISO 17025) |
| | | 3 NEW | 10198867 | | | |
| | | 25 | 10204494 | | | |

Our pH buffers at 4.01, 7.00, 8.00, 9.21 and 10.01 are conveniently color-coded for quick identification. For applications where a colorless solution is preferred, we also offer colorless equivalents. Please visit our website for more details. The products 250 mL, 500 mL and 1 L are delivered in the proven Calpack Bottle with calibration chamber.

| pH | Buffer Set | Package [L] | REF |
|---|---|---|---|
| | **DuraCal Buffer pH 4.01 / 7.00 / 9.21** | 0.5 each | 238922 |
| | **DuraCal Buffer pH 4.01 / 7.00 / 10.01** | 0.5 each | 238924 |

| ORP | Redox Value mV | Package [L] | REF | mV Accuracy | Stability (in months) |
|---|---|---|---|---|---|
| | **271 mV** | 0.5 | 238228 | ± 5 mV | 24 |
| | **475 mV** | 0.5 | 238227 | ± 5 mV | 24 |
| | **475 mV** | 0.25 | 238322 | ± 5 mV | 24 |

NEW

The new 3 liters buffers offer the ideal size for laboratories with regular buffer consumption, while being perfectly suited for automated calibration systems. With 3 liters, they provide sample volume for higher buffer usage yet remain easy to handle.

The 3 x 500 mL sets allow you to order the same buffer three times, with the assurance that all bottles come from the same production lot.

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# Conductivity Standards

## We not only produce standards we define them!




Low-conductivity calibration standards are traditionally unstable, as $CO_2$ absorption shifts values after opening. Hamilton's patented glycerin-matrix formulation overcomes this challenge, providing guaranteed stability for up to 3 years, even after opening the bottle. Even when bottles remain open for up to one hour, Hamilton standards retain documented stability and shelf life, ensuring reliable performance under realistic conditions.

Our glycerin-based standards, supplied in 250 ml glass bottles, offer long-term stability, minimal evaporation, and enhanced resistance to microbial growth, ensuring consistent and reliable performance over extended periods. For routine applications, our water-based Basic Line standards in 500 ml DuraCal bottles provide low viscosity for easy handling and minimal air bubbles, combining practicality with precision.

Hamilton is the first manufacturer to certify 1.3 µS/cm and 5 µS/cm standards with ±1% accuracy and documented shelf life. All standards are independently verified by Europe's leading metrology institutes (DFM, ZMK), ensuring your low-conductivity measurements are precise, traceable, and fully defensible.

| Value at 25 °C µS/cm | Package [mL] | REF | Base | Certified Accuracy | Stability (in months) | 17025 Verification | ISO 17034 Certified |
|---|---|---|---|---|---|---|---|
| **1.3** | 250 * | 238973 | Glycerin | 1% | 12 | DAkkS/DANAK | Yes |
| **5** | 250 * | 238926 | Glycerin | 1% | 36 | DAkkS/DANAK | Yes |
| **15** | 250 * | 238927 | Glycerin | 1% | 36 | DAkkS/DANAK | Yes |
| **84** | 500 ** | 238984 | Water | 1% | 18 | DAkkS/DANAK | No |
| **100** | 250 * | 238934 | Glycerin | 1% | 36 | DAkkS/DANAK | Yes |
| **147** | 500 ** | 238985 | Water | 1% | 18 | DAkkS/DANAK | No |
| **706** | 250 * | 238929 | Glycerin | 2% | 36 | DAkkS/DANAK | No |
| **1413** | 250 * | 238928 | Glycerin | 1% | 36 | DAkkS/DANAK | No |
| **1413** | 500 ** | 238986 | Water | 1% | 18 | DAkkS/DANAK | No |
| **12'880** | 500 ** | 238988 | Water | 1% | 18 | DAkkS/DANAK | No |
| **100'000** | 250 * | 238935 | Glycerin | 1% | 36 | DAkkS/DANAK | No |

* Glass bottle / ** Calpack bottle

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# Features

## pH Buffers

1. Convenient 250 mL, 500 mL or 1000 mL bottle with built-in calibration compartment (15ml)
2. Exceptional accuracy and stability, backed by top-tier certifications
3. Immune to microbial growth

## Conductivity Standards

1. Remains stable for a minimum of 1 year for 1.3 µS/cm, and up to 3 years for all other values
2. Traditional low-conductivity standards degrade after opening due to $CO_2$ absorption, while Hamilton's patented glycerin-matrix standards deliver sustained stability and precision
3. Stability is proven to remain consistent even after bottles have been open for up to one hour

DUPLIQUE DUPSOMERSAS

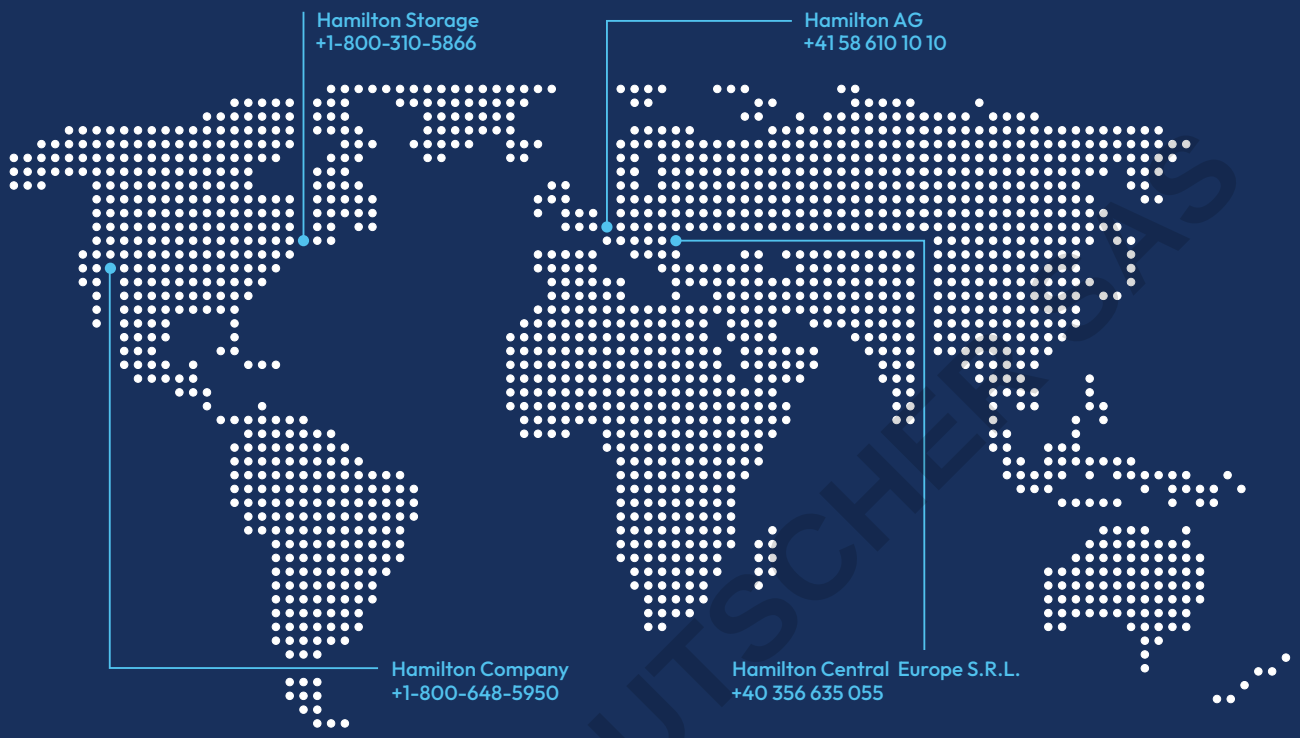



A QR code on the bottle guides to the certificates on the website. Eliminating printed certificates is, alongside the optimized packaging, another step toward greater sustainability through digitalization, reduced material use, and improved efficiency.




Our wide range of container sizes, allows you to choose the buffer ideally tailored to your worklflow and consumption.

HAMILTON




**Years of Experience**
75+

**Locations Worldwide**
22+

**Employees Internationally**
3,000+

To find a representative in your area, please visit:

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