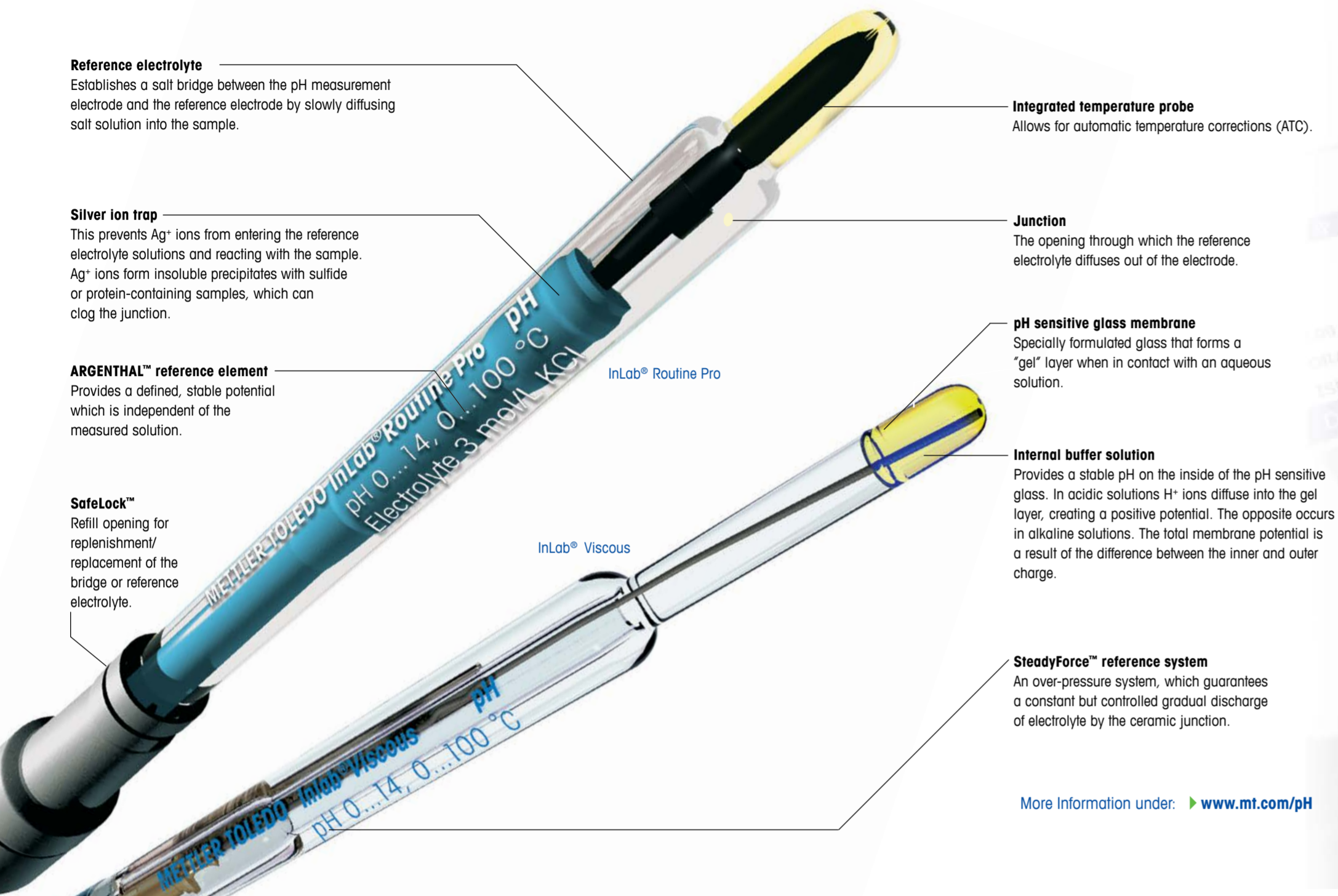


The Art of pH Measurement



More Information under: www.mt.com/pH

www.electrodes.net

pH Troubleshooting

Locating the problem of a pH measuring system that has suddenly started performing badly is the first step to restoring it to its original level of performance.

Where could the problem lie?

With the meter set to read mV, dip the electrode into pH 7 buffer. The reading should be 0mV ±30 mV with an Ag/AgCl reference. Next read a pH 4 or pH 10 buffer – the solution should be greater than 150 mV different from the pH 7 potential. If not then test the following...

Application



Are you using the right electrode for your application? There are different types of pH electrodes for special applications: non-aqueous, low conductivity, TRIS etc. To make sure that you are using the right electrode visit the METTLER TOLEDO Sensor ProductGuide at: www.electrodes.net

Operator



It is sometimes worthwhile to check the obvious: The unit is properly grounded or plugged into the wall outlet. The electrodes are plugged into proper terminals and are seated firmly. The meter is properly calibrated with the correct buffers.

Before taking a measurement, check that the wetting cap and side filling aperture have been removed or in the case of SafeLock™ opened. Remember to rinse the electrodes before measuring a different buffer or sample.

pH Meter



Test the pH meter with the shorting clip (standard delivery) or Test Plug Set. If this plug does not set the potential to 0 mV, the meter may be the problem. In this case call METTLER TOLEDO Service.

Buffers



Ensure that you are using the correct buffers in the correct sequence. Always use fresh buffers.

Cable and Connector



Test your detachable cable by replacing it with an identical one. If you do not have a spare cable or are using a hard wired electrode, then check to see whether there is a change in the signal on the instrument when you bend the cable.

Inspect and clean all connectors including the meter socket. If you are using an electrode with a MultiPin™ or S7 connector, make sure that they are free from KCl crystals or other deposits. Dirty or corroded connectors lead to erroneous readings.

Electrodes



Visual inspection of the electrode can often provide important clues about the cause of the problem:

Filling solution

- Ensure that the electrolyte level is above the internal elements.
- Empty, rinse and refill the electrode reference chamber.
- Ensure that you are using the correct electrolyte as written on the electrode shaft or in the operating instructions, and that the electrolyte fill port is open.

Air bubbles

- Check for air bubbles inside the electrode. If some are present remove them by gently shaking the electrode downward or in the case of electrodes with gel electrolyte placing the electrode upright in warm water.

Blocked junction

- Are there visual signs of blockage or discoloration of the reference junction?
 - Hang the electrode in the air for 30 minutes to check whether the electrolyte flows through the junction. If no KCl creeping is visible, it is a sign that the junction is clogged and must be cleaned.
- Soak the electrode in hot (50 °C – 60 °C) electrolyte for a few minutes. If this does not work then...
 - ...soak the electrode overnight in 0.1 mol/L HCl.
 - For protein contamination, soak the electrode in Pepsin–HCl solution.
 - For sulfide contamination, soak the electrode in Thiourea solution.
 - As a last resort, soak the electrode in ammonium bifluoride regeneration solution for approx. one minute.

METTLER TOLEDO