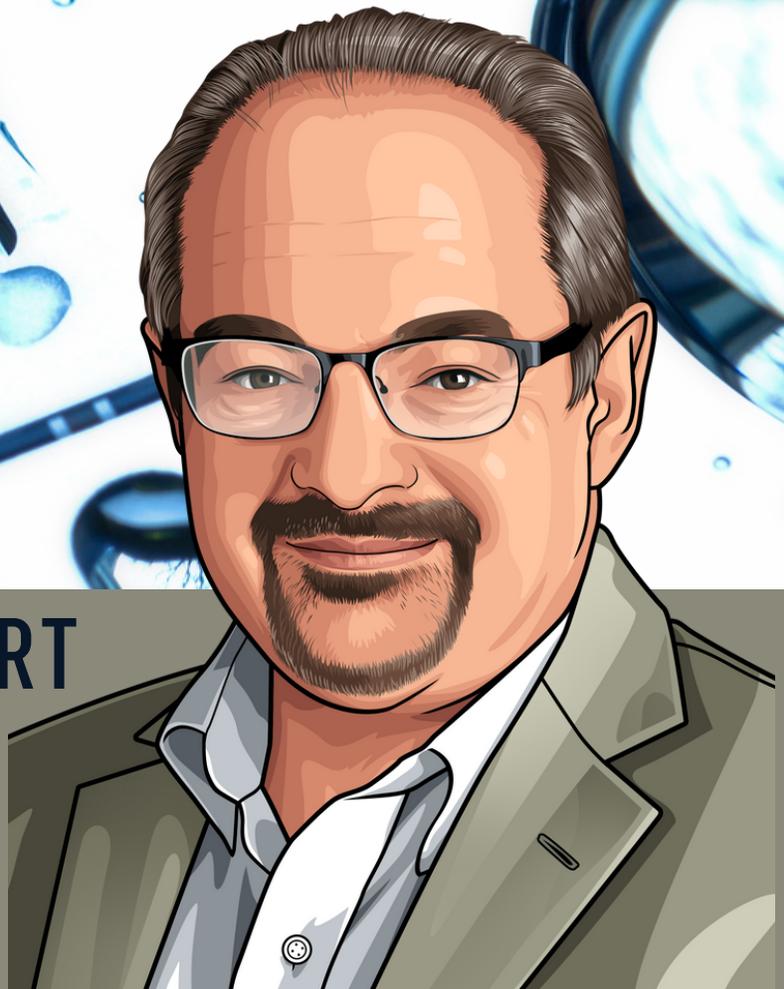


pH HOW DOES IT AFFECT MY INSTRUMENTS?

WATER QUALITY EXPERT

 **BEYOND**
CLEAN



Jonathan Wilder, Ph.D. | Managing Director
Quality Processing Resource Group, LLC

Beyond Clean Water Quality Expert:

pH, HOW DOES IT AFFECT MY INSTRUMENTS?

Jonathan Wilder, Ph.D. | Quality Processing Resource Group, LLC

Acid, base, alkaline, neutral. These are all terms we hear thrown around but what do they do to the instruments?

Terminology:

- Hydrogen ions (H⁺): the acidic component of a water sample
- Hydroxyl ions (OH⁻): the basic or alkaline component of a water sample
- pH: the negative logarithm of the concentration of hydrogen ions in a water sample, typically ranging from 1 to 14. A solution with 10⁻¹⁴ hydrogen ion concentration will have a pH of 14.
- Neutral: the concentration of hydrogen ions (H⁺ the acid ones) and hydroxyl ions is about equivalent at 10⁻⁷ per liter each, or pH 7.
- Acid: a pH of less than 7. This means that the concentration of hydrogen ions exceeds the concentration of hydroxyl ions.
- Basic or Alkaline: a pH of greater than 7. This means that the concentration of hydroxyl ions exceeds the concentration of hydrogen ions.

So, what do these do?

Acidic solutions, typically pH 1-6, are used to remove corrosion and form the passive layer of a stainless steel instrument. There is no coating applied. The passive layer is a natural occurrence of stainless steel when subjected to acidic conditions.

Acidic solutions are also good for descaling stainless-steel washers, ultrasonics and sterilizers.

Basic or alkaline solutions and detergents are highly effective at destruction of biological material on surgical instruments. They do not affect stainless steel if it has been properly passivated.

Use of basic/alkaline detergents in washers tends to keep them very clean and shiny, since bioburden doesn't stand much of a chance. But if they are of high-enough pH, their use can be problematic if aluminum containers are being used. Some aluminum containers can work well with these detergents. Some cannot. Test before using! Enough chemistry for this month. See you next month!

Have more water quality questions? Contact Jonathan at: jwtilder@qprgllc.com

Beyond Clean Water Quality Expert Biography:

JONATHAN WILDER, PH.D.

MANAGING DIRECTOR
QUALITY PROCESSING RESOURCE GROUP, LLC



Dr. Wilder joined MDT Corporation in 1990 as Staff R&D Scientist, tasked with executing process and product development in sterilization, disinfection and cleaning of reusable medical devices. He started H & W Technology in 1997 and allied with SMP Laboratories from Tübingen, Germany to form Quality Processing Resource Group (QPRG) in 2016. QPRG provides clients with operational, regulatory, and technical consulting in the area of sterile processing. Its services include accreditation readiness audits, technical deep dives into the issues causing wet loads and staining, and 510(k) filing support for manufacturers. He has a Ph.D. in physical chemistry from NYU and an MBA from Rochester Institute of Technology. He is a New Yorker by birth but escaped in 1986 to a postdoctoral fellowship at the Max Planck Institute for Surface Physics, the Fritz Haber Institute, in West Berlin, Germany. He is currently happily living near his children in Philadelphia, PA.

 **BEYOND** **CLEAN** 