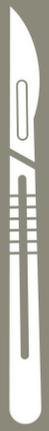
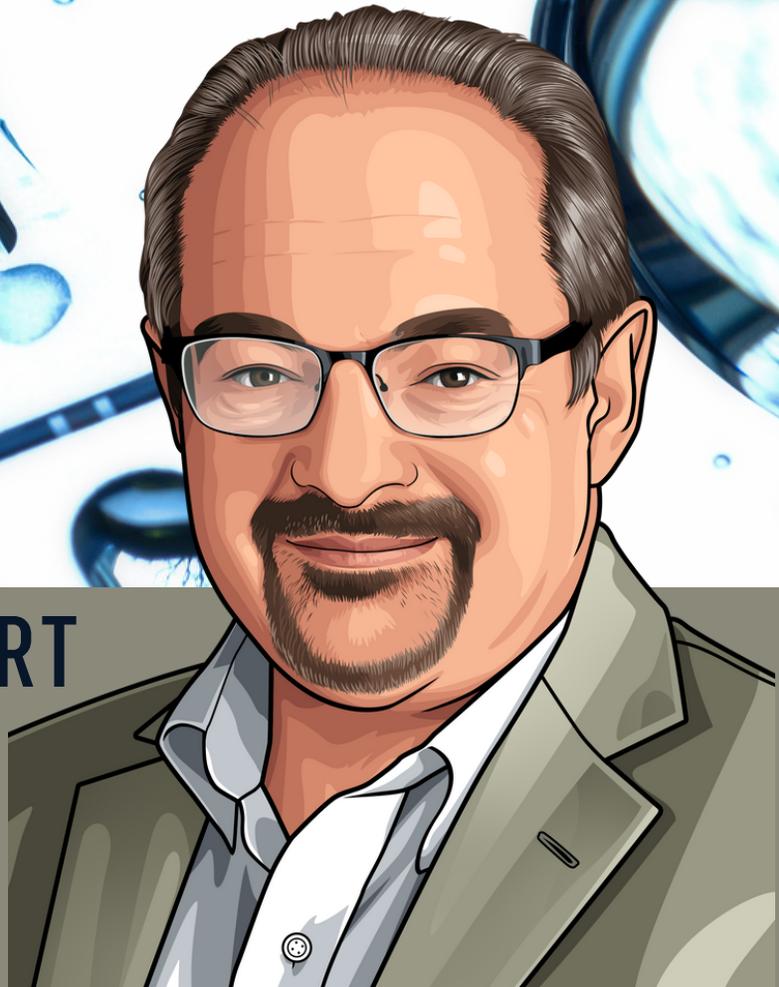


# CONDUCTIVITY & TOTAL DISSOLVED SOLIDS WHAT DO THEY TELL US?



WATER QUALITY EXPERT

 **BEYOND**  
CLEAN



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

*Beyond Clean Water Quality Expert:*

## CONDUCTIVITY & TOTAL DISSOLVED SOLIDS: WHAT ARE THEY TELLING US?

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

Conductivity is defined as the amount of electrical current that can be passed across a 1 cm gap between two electrodes at a potential difference of one volt. One microsiemen/cm means that you can pass one microamp across this gap (Sorry, every now and then, the physical chemist in me comes out). So what does this mean?

The greater the conductivity, the greater the amount of current that passes across the gap. But what causes the conductivity to increase? Contaminants in the water, especially those that are able to be ionized (dissolve into positive and negative ions). Pure water has a conductivity of about 0.055 microsiemens/cm. Critical water as defined in AAMI TIR34:2014 has a conductivity of <10 microsiemens/cm. Tap (or utility water) has a conductivity of <500 microsiemens/cm. The less pure the water is, the higher its conductivity.

And what of total dissolved solids (TDS)? This is usually derived from conductivity, but that's not the whole story. TDS can also include dissolved impurities that do not ionize, and are therefore not detected by a conductivity measurement. However, these materials are often inert, so conductivity provides a good measure of the impurities in water that can cause trouble for an SPD. It doesn't tell you what those impurities are. But if you are able to decrease the conductivity, you know that your water is purer than before you started.

As we saw last month, water that is too pure can also cause trouble if the plumbing isn't designed for it. So, don't get carried away without a full system examination by an expert! See you next month!

Have more water quality questions? Contact Jonathan at: [jwilder@qprgllc.com](mailto:jwilder@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** 