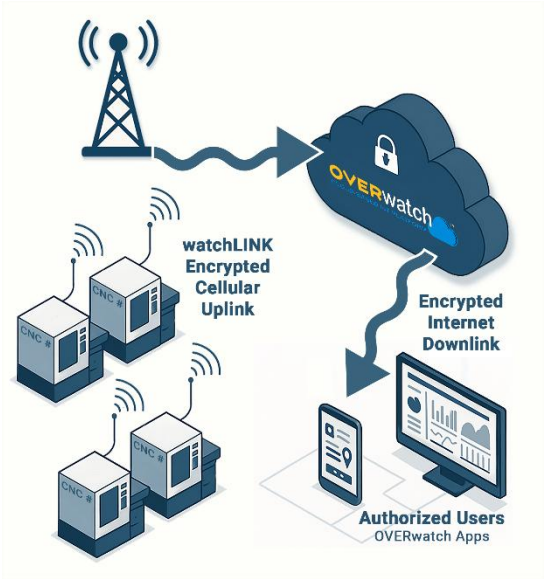
MISCO watchLINK™
Fluid Tracking Technology

Automated Metalworking Fluid Performance Tracking in Real-Time



Metalworking fluid (MWF) management is often the most neglected part of a manufacturing process, leading to millions of dollars in waste/loss. Complications from nonconforming MWF are often detected only after the fluid is operating well outside its specified parameters. watchLINK™ Fluid Tracking Technology provides you with the tools necessary to automatically track your metalworking fluids with the click of a mouse or flick of a finger. If only the rest of your business day were that easy.

I know I should, BUT…

You know the problem; you can probably repeat it in your sleep—non-conforming MWF may increase cycle times, causing you to experience decreased feed and speed rates, decreased tool life, and increased corrosion. You may experience mild to severe surface finish defects and an increased risk of microbial contamination leading to premature fluid aging. Occasional symptoms include rancid smells, spontaneous health and safety issues leading to excessive downtime, fluid waste, and disposal costs. It sounds like the adverse side effects in a pharmaceutical ad. If you experience any of these symptoms, there is a solution…

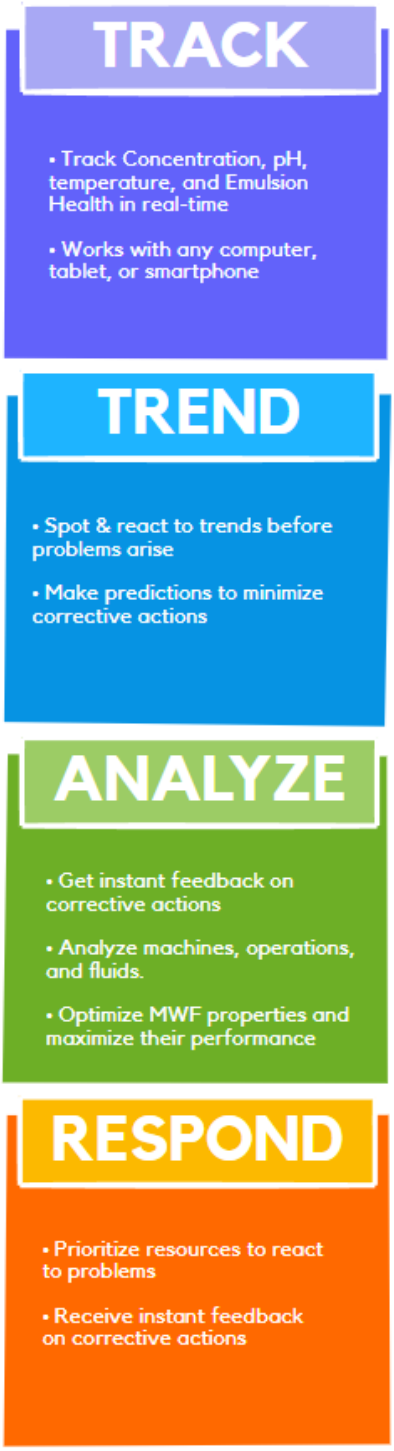
The significance of managing proper coolant concentration is not lost on any professional tasked with running a machining operation, and few shops are without at least one handy-dandy handheld refractometer with which to measure MWF concentration. However, that refractometer is often an unfortunate afterthought, relegated to the hidden recesses of someone's desk drawer and only deployed when the symptoms of a serious problem arise.

Yeah, I know you have a program in place to monitor your fluids daily and write their values down on a clipboard. However, if your shop is like most, the last date on that clipboard is more than six months old, and nobody has remembered to enter those values into the computer. Don't be embarrassed; every leader has the best intentions when it comes to MWF management.

The reality is that everyone is busy - really busy - and with so many other issues competing for your attention, something as routine as MWF management often falls by the wayside; that is, of course, until something goes wrong…terribly wrong.

If it takes longer for you to find your handheld refractometer than it takes to measure a coolant sample;

if you recognize the importance of monitoring and managing MWFs but don't have enough resources; or if you just want to implement industry best practices and lead your company toward the "smart-factory" of the future and the promise of Industry 4.0, then have a look at watchLINK™.



watchLINK™

watchLINK Watches so You Don't Have to…

watchLINK is a cloud-based IoT platform that offers a radical new approach to automated, real-time MWF tracking. Once deployed on a sump or central system, the BRIXwatch and pHwatch sensors continuously gather and track concentration and pH data, sending the encrypted readings through the watchLINK Hub to the super-secure MISCO Cloud.

There, you can view history and trend data on a smartphone, tablet, or computer. Because the measurement process is automated, no one needs to remember to walk around the plant, take measurements, record them, and enter them into a computer. Best of all, no one wastes time monitoring sumps that are already in spec. Real-time fluid tracking and timely corrective response deliver the best performance from your fluids.

> *According to Metalworking Fluids, 2nd ed. (Beyers et al.), "The majority of fluid problems arise due to improper concentration, when the fluid mix becomes too rich or too lean. Evaporation and carry-off losses, approximately 2 to 10% per day, alter the fluid's mix ratio. (pg. 283)." It is also noteworthy that "A mix that is excellent at 5% may give considerable problems at 3% and surely will at lower strengths. Not only can the corrosion inhibitors be over-diluted, but microbial damage (as discussed earlier) can set in. (Pg. 194).*

pHwatch Industrial pH Sensor

Much more than a Refractometer…

I don't have to tell you that concentration control is essential, but did you know that microbial growth is one of the main threats to emulsion stability and the health and safety of your workers? Higher microbial loads release acids, which lower pH and stress MWFs.

pH is a 'vital sign' of the overall health of a metalworking fluid and provides early warning of uncontrolled microbial growth. pH should generally be moderately alkaline, between 8.5 and 9.5 for most metals and slightly lower for aluminum, to reduce microbial loads and avoid corrosion of parts and tools.

For most metals, pH levels <8.3 often lead to corrosion, emulsion instability, a festering stench, and an increased risk of health issues for workers. pH levels >9.8 are likely to cause skin irritation.

pHwatch is a rugged, hybrid, industrial pH meter deployed with BRIXwatch and designed to track the overall health of your fluid. It can alert you to problems well before complete failure.

If left unchecked, pH trouble can lead to premature emulsion failure requiring draining and fluid replacement. Consider the cost to drain, clean, refill a sump, and dispose of the old fluid, plus the lost production. Preventing one occurrence per month could more than cover the subscription cost.

Your Secure Link to the watchLINK Cloud

watchLINK is a small hub that powers and communicates with your BRIXwatch and pHwatch sensors, enabling real-time automated fluid tracking. The watchLINK hub arrives preconfigured and, because it has its own integrated cellular radio, isn't connected to your company's computer network (the security guys in IT love that, since it can't breach your firewall and compromise your network). Secure, encrypted sensor data is aggregated in the watchLINK hub and transmitted to MISCO's super-secure watchLINK Cloud-Based IoT Platform. In other words, no IT drama.

Most IoT systems commonly connect sensors with short-range radios, which then connect to a gateway device that connects to the Cloud. In this topology, the gateway unit is the weak link; if it goes down, the entire plant is blind. MISCO overcomes this failure mode by integrating a cellular radio into each watchLINK hub, eliminating the gateway as a single point of failure. In the unlikely event that you lose one watchLINK hub, only one sump is affected.

Plus, the system is extremely secure. From the moment the sensor takes a reading, the data is encrypted using the highest level of encryption wizardry before it is shot through the air to the MISCO fortress securely hidden above you in the "clouds," under the watchFULL eye of the good people at Amazon. The same people who can deliver you a delicious package of beef jerky and underarm deodorant in just one day!

Since watchLINK never touches your IT network, it eliminates a major security risk, and installation doesn't require a brigade of nerdy technicians with clean shoes, thick glasses, and pocket protectors invading your plant floor.

Our head is in the Clouds….

The watchLINK application brings it all together into a complete end-to-end solution. WatchLINK collects and secures your digital fluid data, providing instant access to real-time and historical measurement data, plus trend analysis, on any smartphone, tablet, or desktop computer. You can set limits and ranges for each fluid and receive instant emails or text messages if a parameter exceeds those limits.

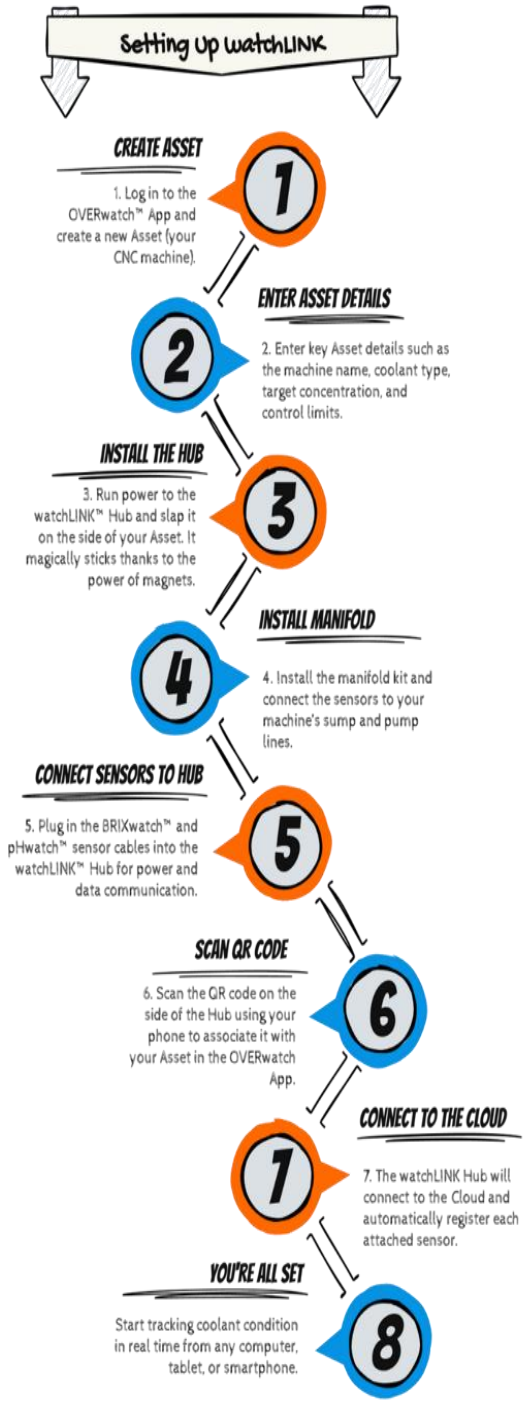
Because the measurement process is automated, no one has to remember to walk around the plant taking manual measurements, recording them, and entering them into a computer, and no one wastes time monitoring sumps that are within spec. Instead, you can mobilize your resources to take corrective action only when and where needed. Identify and react to trends before problems arise and get instant feedback on your corrective actions. Plan maintenance proactively instead of reacting to emergencies.

With watchLINK, you can track fluid concentration, pH, temperature, and emulsion health online or download historical data in an Excel Spreadsheet for further offline analysis and record-keeping.

watchLINK fluid tracking technology represents a rugged, inexpensive, and robust real-time fluid management solution. It allows you to reduce fluid costs and waste, optimize fluid performance, and ensure a healthy working environment for your workers.

It's Really Not Complicated…

You have enough to worry about, so we simplified the setup to help make your installation as worry-free as possible. But we are just a phone call away if you ever need a hand. Let us help you transform MWF management into MWF leadership.



About MISCO

MISCO Refractometer is a U.S. manufacturer specializing in precision fluid measurement instruments, including digital refractometers, sensors, and IoT-enabled monitoring systems for industrial and laboratory applications. Based in Cleveland, Ohio, since 1949, MISCO designs and builds its products in-house with NIST-traceable calibration and application-specific measurement scales tailored to industries such as metalworking, automotive, food, and chemical processing. Known for accuracy, durability, and innovation, MISCO integrates its handheld and inline technologies—like the Palm Abbe™, BRIXwatch™, pHwatch™, and watchLINK™ systems to deliver complete, connected solutions for real-time fluid analysis and control.

See all MISCO refractometers at www.misco.com or visit our watchLINK micro-site at watch.misco.com. For customer service or tech support, email orders@misco.com or call +1-440-349-1500.