Uponor Qumo for a better drinking water quality control

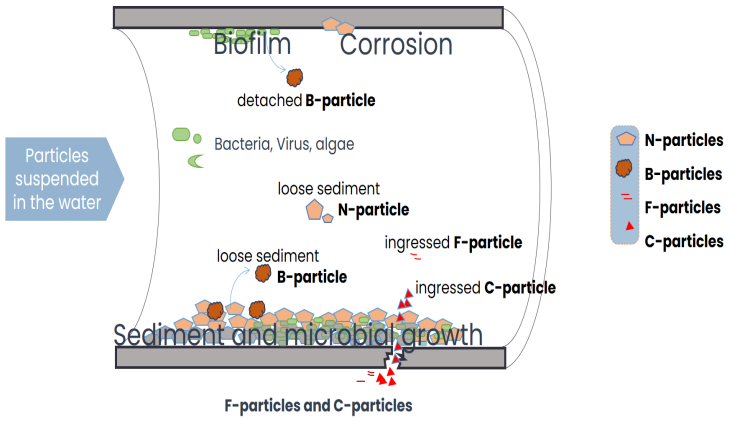
Uponor Qumo

- Monitors quality of water in drinking water production and distribution in real time
- Alerts for deviations as critical or non-critical
- Creates time to react on water quality incidents
- Artificial Intelligence (AI)- boosted analytics monitors water quality change
- Improves capabilities over time with continuous software and AI updates
- Easy to install, scale and maintain

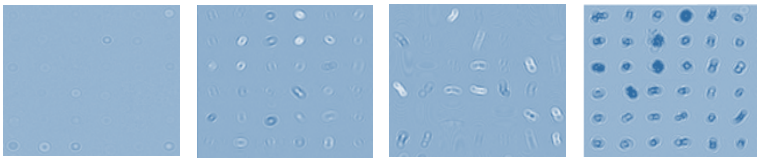
Continuous drinking water monitoring

Sensors with artificial intelligence are installed on chosen locations in the water production and distribution, from the source to the end user. The sensors measure the water's properties continuously.

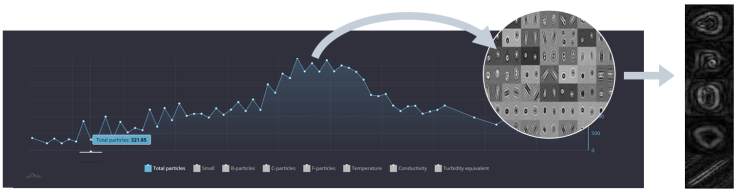
The particles in the water are analysed with AI in real time. The system alerts when deviations from given limits are detected.



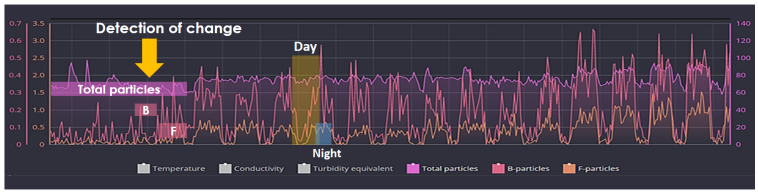
Reference: Hammes, Loosdrecht, Prest, Vrouwenwelder. 2016. Biological Stability of Drinking Water: Controlling Factors, Methods, and Challenges. Frontiers in Microbiology. Accessed 10.9.2021 [https://doi.org/10.3389/fmicb.2016.00045]

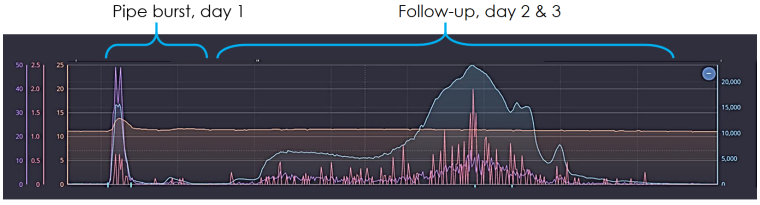


N-particles B-particles F-particles C-particles



Example of detected Diatoms





Information with indicators

Holographic microscopy imaging boosted with AI, enables a classification of the particles suspended in the water. These can in turn be associated with events in the water as follows:

N-particles

Particles normally present in the water.

B-Particles

Complex shaped particles that are not normally found in drinking water in substantial amounts. Examples on these are biofilm fragments and sediment.

F-Particles

Fiber shaped particles. These have been detected in drinking water contaminated with stormwater and sewage water. Algae and cyanobacteria can also form fiberlike, filamentous particles.

C-Particles

Typically detected in drinking water that has been contaminated with storm- or sewage water.

Field experiences

Seasonal variations of a sandfilter

AI boosted algorithms measure micrometer-sized particles in the water. The measurement shows clearly how the amount of particles grows during the seasonal variation. Diatom algae are detected in the water.

Structural changes in a water tank

The measurement shows a change (yellow arrow). It shows that the amounts of B- and F-particles are at times higher in outgoing water during daytime. The trend is rising. The conclusion is that particles are generated by the tank to the water.

Follow up of a pipe burst

During a pipe burst (day 1) the amount of particles rise rapidly. After repairing the burst one can follow how the water gets clarified over time and that the water does not contain C-particles.

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