

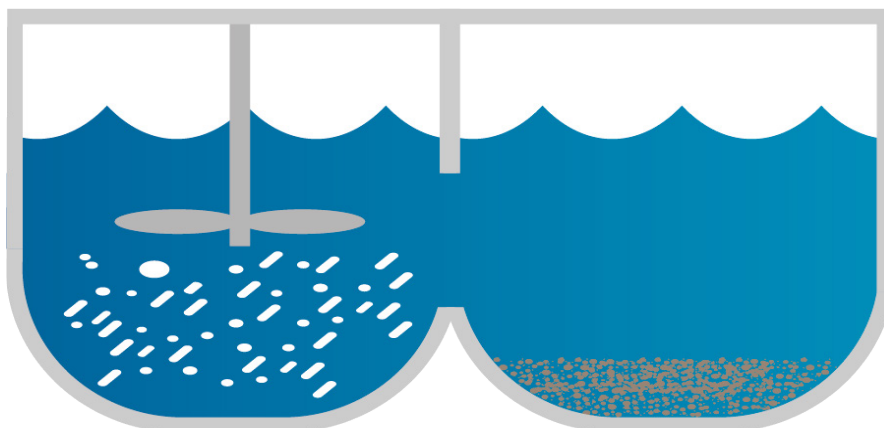
Flocculant dosing by turbidity measurement

Water often has a high level of turbidity at the inlet to the waterworks, which is caused by seasonal events or heavy rainfall, especially in the case of surface water. The first purification step is therefore the sedimentation of suspended solids. Flocculants are used for this, which promote aggregation into macro particles. This protects fine-mesh filters and saves the costs of filter backwashing. The decisive step is to control the addition of flocculant by measuring turbidity.

Aluminum or iron salts are generally used as flocculants. However, polymers are also possible. Depending on availability and geopolitical situation, prices can vary and thus generate an expensive cost item for water supplies. Recycling costs are also added because the sedimentation sludge has to be cleaned. Depending on the salt used and the recycling method, this can also drive up costs.

The Solution

The AquaScat 2 WTM A is suitable for dosing flocculants. A higher or lower dosage of flocculant can be controlled based on the turbidity at the waterworks inlet. Technically, this is implemented via an analog output channel on the AquaScat 2 WTM A. Due to the high dynamic measuring range of the instrument (up to 4000 FNU) and the simple setting of limit values (alarm, pre-alarm), dosing is easy to program. Alternatively, the AquaScat 2 HT can also be used, but it has a lower resolution of 0.1 FNU.

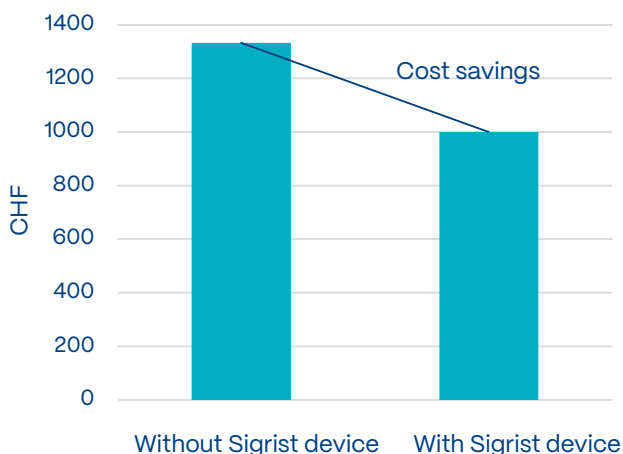


Scheme of water treatment: Flocculants are added to heavily contaminated raw water after extraction.



The AquaScat WTM A

The Customer Benefit



- Recommended quantity of flocculant: ~1.5 kg per 1000 m³ raw water
- Price of flocculant: 2 CHF/kg
- Reduction in addition through precise dosing by means of turbidity: 25%

With a flow rate of 1 million m³ of water, 1500 kg of flocculant is required. The price for the flocculant in this case is CHF 3000.

→Price saving with controlled addition amounts to 750 CHF

Important savings that are not calculated here:

- Less flocculant in the sedimented sludge → reduction in recycling costs

- Through efficient dosing → at least CHF 1000 savings, with a flow rate of 1 million m³ of water

Technical Details

Due to the non-contact free-fall measurement, the optical components are not contaminated and maintenance is reduced to a minimum. As standard, the devices have 2x analog 0/4...20 mA outputs, 2x 250VAC relay contacts, 7x digital outputs and Modbus TCP. This makes process control very easy to implement – and avoids major additional costs. Further device features are:

Simple recalibration in the field with solids unit.

- High dynamic measuring range with accuracies < 0.01 FNU. This allows processes to be controlled very precisely.
- Intuitive operation with integrated control unit
- Simple extension to a measuring system possible

Practical Measuring Tasks (Examples)

The AquaScat 2 WTM A is not only suitable for measuring the turbidity of raw water. Thanks to the ingenious device design, turbidity can also be measured close to the molecular scattering of pure water. This is just under 0.007 FNU.