sigrist photometer

ColorPlus 2 System

Elimination of micropollutants (4th clarification stage)

Complete system for measuring UV absorbance (254nm) with automatic cleaning at 2 to 4 measuring points

Measurement of absorbance before and after ozonation with the Sigrist ColorPlus 2 to determine the absorbance difference. With expansion modules, the ColorPlus 2 system can be extended to up to 4 measuring points. The time-controlled, automatic cleaning with cleaning liquid and subsequent blowing out with compressed air constantly enables very precise measured values.

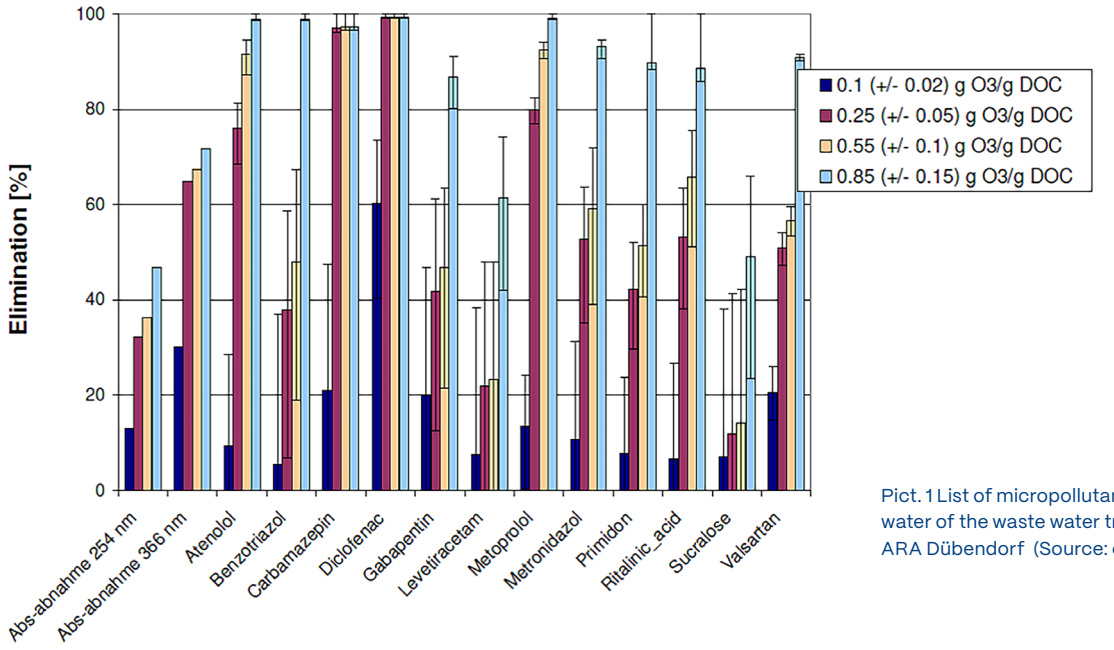
The basic version of the ColorPlus 2 system consists of:

- 2 absorption measuring instruments ColorPlus 2 Bypass
- System for automatic cleaning of the flow cell with compressed air and detergents

Advantages of the SIGRIST complete system

Customer benefits

- The elimination of micropollutants is precisely measured before and after ozonation.
- Controlling the ozone plant to achieve a low energy consumption low.
- Automatic cleaning of the flow cells prolongs the cleaning intervals.
- Maintenance is considerably reduced.
- The whole plant can be operated for a longer period without the need to stop the plant.



Pict. 1 List of micropollutants in waste water of the waste water treatment plant ARA Dübendorf (Source: eawag)

Pharmaceuticals, detergents, pesticides, cosmetics, shower lotions and many other substances can only be partially or not at all biologically degraded in watertreatment plants. These micropollutants (also called trace substances) can only slightly sorbed to the sewage sludge, which is why the retention of these trace substances is insufficient.

The elimination of these trace materials in waste water can be achieved by two processes:

- The use of ozone to oxidize the substances.
- Use of Powder Activated Carbon PAC to adsorb and subsequently filter those substances.

Together with the PAC, these substances can then be filtered out.

There are advantages and disadvantages to both methods. The common feature is that only as little as possible and as much as necessary ozone or PAC should be used. Thanks to the permanent monitoring of the absorbance difference, the optimum dosage can always be ensured.

Based on the experiences and examinations made in previous years, a practical test using ozone in a pilot plant was carried out at the eawag in Dübendorf in 2011/2012. This demonstrated the elimination of trace substances by ozone. At the same time, control of the process was determined which guarantees optimal ozonation. Only reliable control makes it possible to keep the energy consumption required for this process low. Thus, the idea of «measuring the absorbance difference by ozonation with photometers» was established.

Main technical details

Measuring principle:	Absorption
Wave length UV lamp:	254nm
Measuring span:	0 ... 3 E
Resolution:	0.001 E
Protection degree:	IP 65
Sample Temperature:	0 ... 40 °C

Details and technical data:

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ColorPlus 2 System

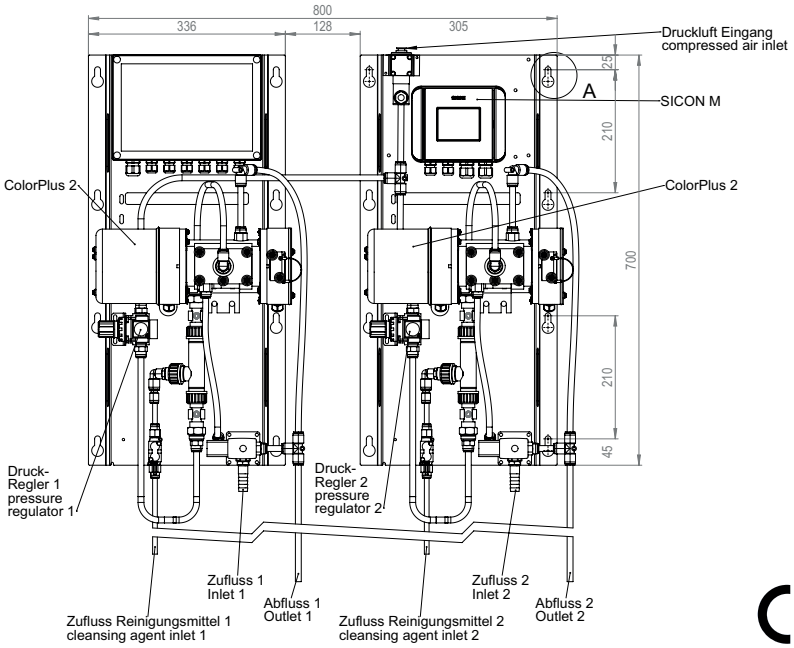
Technical data

Device	
Measuring principle:	Absorption
Wave length UV lamp:	254nm
Measuring span:	0 ... 3 E
Resolution:	0.001 E
Measuring ranges:	8, freely configurable
Ambient temperature:	–10.. + 50 °C
Enclosure material:	Stainless steel 1.4301
Protection degree:	IP 65
Power supply:	100..240 VAC, 47..63 Hz, 35 W (70 W peak power)

Flow cell	
Material:	PVC 100mm
Window material:	Quarz (UV)
Seals:	EPDM

Sample Temperature:	0 ... 40 °C
Sample pressure:	400 kPA (4 bar)
Sample flow:	min 1 l/min
Compressed air supply:	200 ... 350 kPA (2..3.5 bar)

Control unit SICON M	
Display:	1/4 VGA, 3.5″
Operation:	Touchscreen
Outputs:	4 x 0/4..20mA, galv.separated, 7 x digital
Inputs:	5 x digital, freely configurable
Digital interfaces:	Ethernet, microSD card, Modbus TCP
Optional interfaces:	Profibus DP, Modbus RTU



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