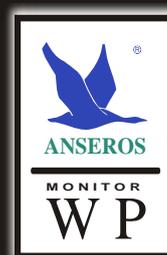


# OZONE WATER ANALYZER SERIES WP



## DESCRIPTION

The patented monitor WP measuring process was developed by Anseros particularly for selective detection of low residual concentrations of ozone in water. It can be used advantageously for moderate and very high concentrations, even for concentrated ozone in water up to  $200\text{g O}_3/\text{m}^3\text{H}_2\text{O}$ . It consists of a hydraulic section and a separate UV process photometer (MP). The WP-principle is patented and approved by CEN.

## APPLICATION

The Ozomat WP is suitable for any kind of water and is used for process control.



## PRINCIPLE OF MEASUREMENT

A small part of the ozone dissolved in the water is desorbed and detected very precisely in the photometer (MP). The desorption is linear with the concentration in the water. Sensitivity to changes of temperature and pressure is compensated. The MP unit is provided with a microprocessor (see also the technical description of the Ozomat MP).

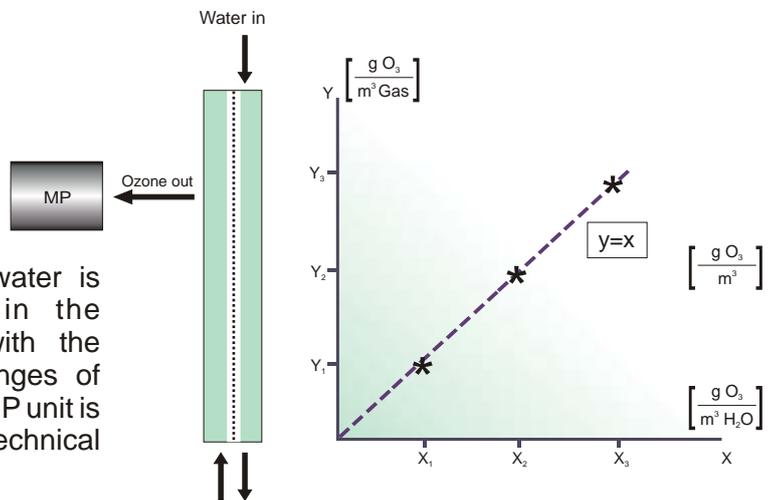


Fig. Monitor WP process, consist of MP (photometer) unit and the desorber

## SPECIAL DESIGN

Designs are being produced for solvents other than water, such as ammonia, hydrochloric acid, and methylene chloride.

## PARTS

### HYDRAULIC

- Needle valve
- pressure regulator
- sampling valve
- protective filter
- filter(back-flushable)
- chamber filter press
- gas separation

- flotation screen
- activated carbon filter
- magnetic valve for sampling point selector (Peripheral MUS)
- flow sensor
- flow regulator
- Teflon tubing

### MEASUREMENT SYSTEM

- isolation amplifier
- RS 232 interface
- alarm contacts for error
- indications from the autodiagnosis system

- ozone regulator (PID)
- test kits

## APPLICATIONS

## PROCESS FUNCTION

DRINKING WATER



Energy saving through consumption-dependent ozone addition and optimization of the ozone generators (KWh/kg O<sub>3</sub>).

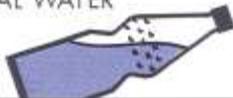
According to some national and international regulations the maximum residual ozone in treated water must not exceed 0.01 mg O<sub>3</sub>/liter H<sub>2</sub>O.  
Regulation of the CT value (concentration x time).

SWIMMING POOL WATER



Regulation of residual ozone ahead of the activated carbon filter when there is cross-sensitivity of chlorine because of rapid change of the swimming population.

MINERAL WATER



Assurance of a residual ozone quantity to prevent precipitation of iron and manganese after filling into bottles.

RIVERBANK FILTRATE



Selective measurement when there is potassium permanganate in the water (see Figure 1)

HIGHEST-PURITY WATER



Protection of the reverse osmosis system.

Control of the UV lamp for residual ozone destruction.

Assurance of disinfection by means of low residual ozone content.

Automatic control of electrolytic ozone-water generators.

SEA WATER



Bromine chemistry.

PROCESS WATER  
WASTEWATER  
DUMP SEAPAGE WATER  
PULP SLUDGE  
ELECTROPLATING WASTE-  
WATER  
ORGANIC CHEMISTRY  
TEXTILE WASTEWATER



Generation of concentrated ozone water up to 200 g O<sub>3</sub>/m<sup>3</sup> H<sub>2</sub>O for rapid reactions with high COD values, surface treatment of semiconductor materials, decoloring, detoxification, bleaching, disinfection, cracking, synthesis.

Cross-sensitivity due to microbubbles, flocs, turbidity, dyes, salt content.

COOLING  
WATER



Corrosion protection.

## REFERENCE

Residual ozone measurement at the Flehe waterworks, Holthausen, Am Saad, of the Düsseldorf City works, Inc.

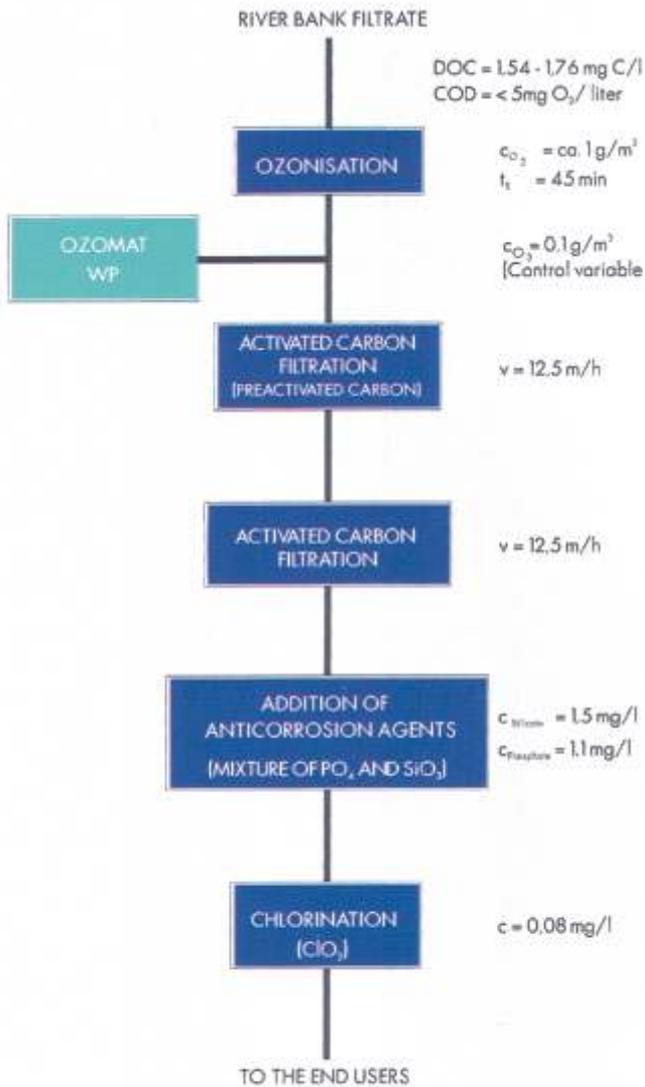


Fig.1: Block diagram of treatment of Rhein riverbank filtrate at Düsseldorf

The Ozomat WP detects even the smallest residual ozone concentrations. Its stability assures minimal ozone requirement. That saves substantial energy in large water treatment plants and diminishes the cost of unneeded electrical power.

## EXAMPLE: OZONE BALANCE

Ozone production is an important quantity for ozone process technology. It shows the effectiveness of the ozone, but also shows the ozone which decomposes unused. Other parameters in ozone technology are: the decrease of the ozone consumption with time, also called the CT value, and the mass flow of ozone, an attempt to establish the ozone dose required to achieve 99,9% disinfection at various values of dissolved organic carbon.

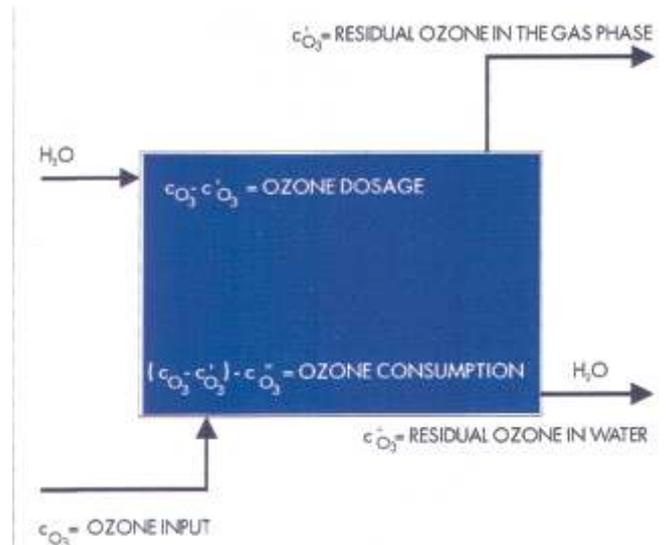


Fig. 2: Determination of the ozone consumption



## MEASUREMENT RANGES

0.001-1.999 mg O<sub>3</sub> /m<sup>3</sup> H<sub>2</sub>O  
00.01-19.99 mg O<sub>3</sub> /m<sup>3</sup> H<sub>2</sub>O  
000.1-199.9 mg O<sub>3</sub> /m<sup>3</sup> H<sub>2</sub>O  
0.001-1.999 g O<sub>3</sub> /m<sup>3</sup> H<sub>2</sub>O (2 ppmw)  
00.01-19.99 g O<sub>3</sub> /m<sup>3</sup> H<sub>2</sub>O  
000.1-199.9 g O<sub>3</sub> /m<sup>3</sup> H<sub>2</sub>O

## SCALING FACTOR

Selectable: 20% -100%

## UNITS

Selectable units indicated:  
mg O<sub>3</sub> /m<sup>3</sup> H<sub>2</sub>O  
g O<sub>3</sub> /m<sup>3</sup> H<sub>2</sub>O (ppmw)  
mg O<sub>3</sub> /liter H<sub>2</sub>O

## OUTPUT SIGNAL

Analog output signal: 0/4-20 mA, 0-1V  
Digital output signal: RS 232  
Built-in software for direct transfer of the measurement data: concentration, pressure and

## SIGNAL THRESHOLDS

2 minimum contacts  
2 maximum contacts  
Switching values and hysteresis freely selectable

## ZERO DRIFT AND SENSITIVITY DRIFT

0% ( autozero), single channel measurement process

## MEASUREMENT ERROR

Less than +/- 0,5%

## CALIBRATION

Not required

## HOUSING

Protection type IP 54, NEMA 12, 19" / 3HE  
Dimensions:  
Photometer: 600 (mm) w x 220 h x 500 d  
Hydraulic system: 270 w x 1000 h x 150 d

## POWER

110 V / 220 V - 50 / 60 Hz

## WATER SUPPLY

Input: nominal 12 mm diameter  
Output: nominal 50 mm diameter

## WATER QUALITY

All kinds of water are possible, e.g. completely deionized water to severely polluted wastewater.  
Modifications according to consultation.

DISTRIBUTOR



MANUFACTURER



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