

Clean water -no chemicals

Why disinfection?

The main objective for drinking- and potable water treatment is to assure hygienically safe water, and disinfection is the most common remedy for preventing the spread of waterborne diseases from pathogenic microorganisms.



AOP – Advanced Oxidation Process

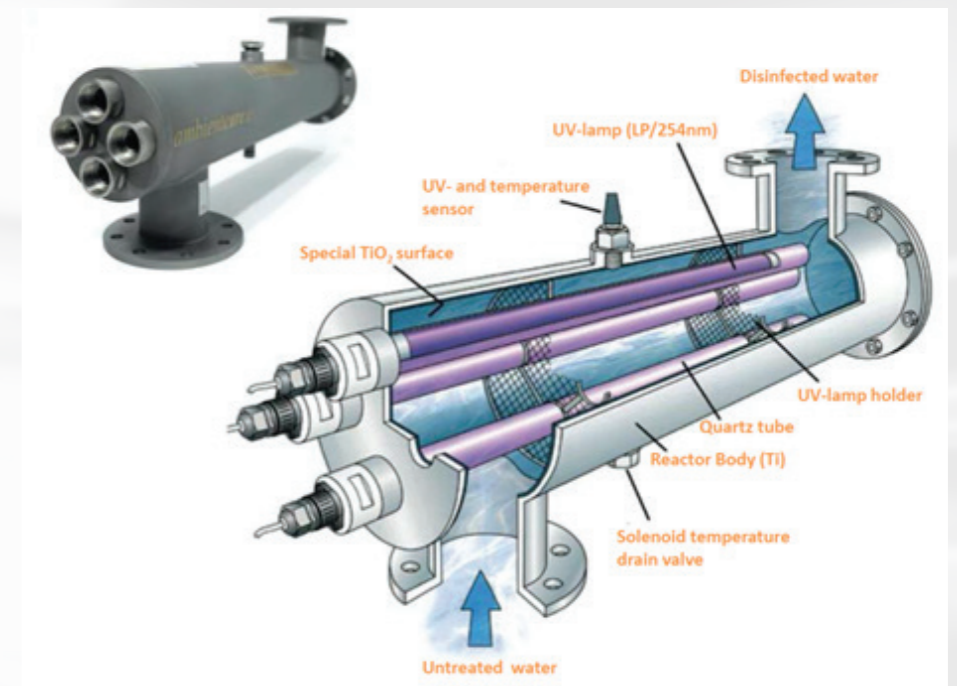
- Oxidation of microorganisms and organic contaminants is one of the most powerful disinfection methods available today.
- AOP uses the strong oxidation capabilities of OH-radicals ($\bullet\text{OH}$) to inactivate and decompose microorganisms and other organic substances to non-hazardous and inorganic substances. $\bullet\text{OH}$ is the second strongest oxidant in nature, only fluorine (F_2) is stronger.
- The product h2o.titanium generates $\bullet\text{OH}$ by using the energy from UV- radiation to start a photo catalytic process between the titanium oxide surface (TiO_2) inside the reactor and the water.
- The photo catalytic process only occurs inside the reactor as the $\bullet\text{OH}$ has a lifespan of only a few nano-seconds.
- ($\bullet\text{OH}$) is not selective and AOP will not only inactivate and kill living microorganisms, but also decompose resulting matter from dead microorganisms and other organic pollutants in the water.

Oxidant	eV
F_2	2,87
$\bullet\text{OH}$	2,80
$\text{O}(\text{1D})$	2,43
O_3	2,07
H_2O_2	1,78
MnO_4^-	1,67
HOCl	1,48
NH_2Cl	1,40
Cl_2	1,36
HOBr	1,33
O_2	1,23
Br_2	1,07
ClO_2^-	0,95

$\bullet\text{OH}$ is, after F_2 , the most powerful oxidant in nature.

Enwa Titanium AOP – h2o.titanium technology

- Disinfection by both UV photolysis and hydroxyl radicals (by the means of AOP).
- Kills and decompose all kind of organic substances and pollutants in the water, not only pathogenic microorganisms.
- 99,99% reduction of pathogenic microorganisms.
- No chemicals are added or in use.
- World unique reactor manufactured in a whole block of titanium dioxide (TiO_2)
- Truly catalytic process as the TiO_2 is not sacrificed or consumed. The reactor carries a long lifetime - minimum 25 years.
- Fully automated monitoring and- control system.



Why Enwa Titanium AOP?

Efficient

- ensures non-selective destruction of all organisms quickly and easily

Environmental friendly

- no chemicals added or used,
- no by-products generated and left behind
- low energy consumption.

Cost effective

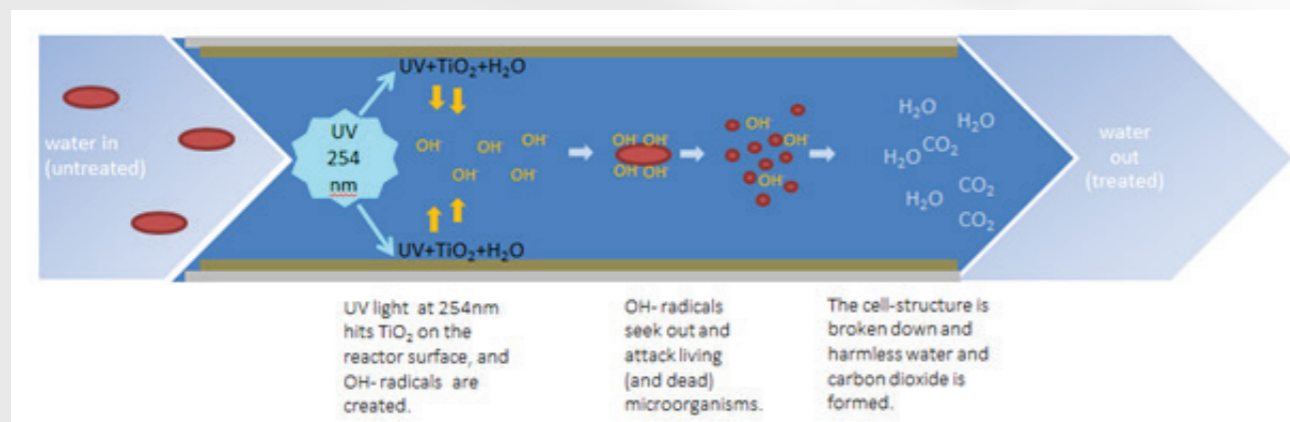
- no expensive chemicals required
- low cost maintenance procedures
- long lifetime

Safe

- fully automated control and monitoring system
- no permanent changes in the water's physical or chemical parameters
- no risk of overdosing

Flexible

- Systems available for flow rates from 0,5 m³/h to over 1000 m³/h
- Offers a water purification process in addition to disinfection system



A schematic figure of the AOP process; As the OH-radicals are non-selective, they will not only attack living organisms, but also eliminate organic residuals from dead microorganisms or other organic pollutants in the water.