

## WHY DO WE NEED TO RECYCLE WASTEWATER ?

In arid areas, due to water scarcity, treated wastewater can be used for a reuse application such as land or golf irrigation.

Water recycling avoids water shortages and protects water resources. Water recycling is safe, environmentally sustainable and cost-effective for decision-makers who care about environmental resources. For operating cost reduction, municipalities and industry are smart to invest in reuse installations to reduce their fresh water consumption. Ozonia and Aquasource can implement different solutions to contribute to integrated water management.

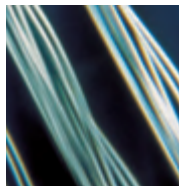
## OUR SOLUTION TO YOUR PROBLEM

Thanks to a comprehensive portfolio, Ozonia and Aquasource offers several products for water reuse applications. The solutions are state-of-the art for water reuse projects and provide multiple barriers to pathogens, organics and other contaminants commonly found in wastewater effluent. For this we can offer two different technologies, membranes and UV. Depending on the raw water quality, as well as the treated water quality expected, we can use one or the other technology.

### MEMBRANES

Ultrafiltration membranes are used as secondary or tertiary treatment. They bring such a high quality treated water that it can be safely reuse for any other non drinking application.

Within the Aquasource range, all the membrane systems dedicated to water reuse are identified under the unit name Re-Source™. Re-Source™ is designed to ensure the best pretreatment technology and to ensure the best removal of particles and micro-organisms. Aquasource Ultrafiltration units have flow rates from 6 to 90 m³/hour.



### UV

UV systems disinfect by inactivating pathogenic microorganisms such as viruses, bacteria and parasites which may be in the water and may cause waterborne disease.

In the broad light Spectrum, the UV-C wavelength (200-280 nm) has been proven to be the most efficient wavelength to inactivate microorganisms by damaging the nucleic acids (DNA or RNA), which in turns the organism's ability to reproduce.

The UV has the advantage to produce no measurable change in disinfection by-products formed.

And thanks to his small foot print, the UV technology can be easily integrated in an existing water treatment plant.

Within the Ozonia range, all UV systems are identified under the name AQUARAY®.



## MEMBRANES

This filtration technique involves passing water through porous and hollow fibres membranes. The wall acts as a filter for all particles larger than 0.02 micron: pollen, algae, parasites, bacteria, viruses, germ and large organic molecules.

Membrane treatment guarantee high water quality and an increase trust of end users in safety of recycled water.

<b>Materials</b>	Hydrophilic polysulfone
<b>Technology</b>	Hollow fiber Inside-Out
<b>Membrane cut off</b>	0.02 µm
<b>Guaranteed Turbidity</b>	< 0.1 NFU
<b>Bacteria &amp; Cysts removal</b>	> 6 Log (>99,999%)
<b>SDI</b>	< 3

## UV

Microorganisms	UV-C Inactivation @ 40mJ/cm² dose
<b>Escherichia Coli</b>	> 4 Log (>99,99%)
<b>Staphylococcus Aureus</b>	> 4 Log (>99,99%)
<b>Streptococcus Faecalis</b>	> 4 Log (>99,99%)
<b>Poliovirus Type 1</b>	> 4 Log (>99,99%)
<b>indigenous coliphages</b>	> 4 Log (>99,99%)
<b>Vaccine poliovirus</b>	> 4 Log (>99,99%)
<b>MS-2</b>	< 3 Log (<99,9%)
<b>Bacillus Subtilis</b>	< 2 Log (<99%)
<b>Adenovirus Type 40</b>	< 2 Log (<99%)

The UV germicidal effect is linked to the Dose (in mJ/cm²) which is the factor of the UV intensity and the contact time in the reactor. As you will see on the table beside, the germicidal effect depends on the microorganism type (Virus, Protozoa, Bacteria, ...). To optimize the UV dose and by consequence the reactor efficiency, we are using advanced Computerized Fluid Dynamic modeling tools.

And to validate theoretical and C.F.D. results, Ozonia has implemented third party validations through biodosimetry tests.

## FOR ADDITIONAL INFORMATION

To obtain more information on our UV and membranes solutions for your application, you have several possibilities :

- Consult the equipment/process brochures included in our product catalogue
- Go to our online Catalogue ([www.degremont-technologies.com](http://www.degremont-technologies.com))
- Contact our UV and membranes specialists



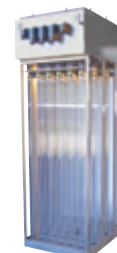
RE-SOURCE™



Aquaray® SLP-WW



Aquaray® 40H0



Aquaray® 3X

## Contacts

[www.DEGREMONT-TECHNOLOGIES.COM](http://www.DEGREMONT-TECHNOLOGIES.COM)

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Your local distributor: