CLAIRE Technologies

Disinfection methods

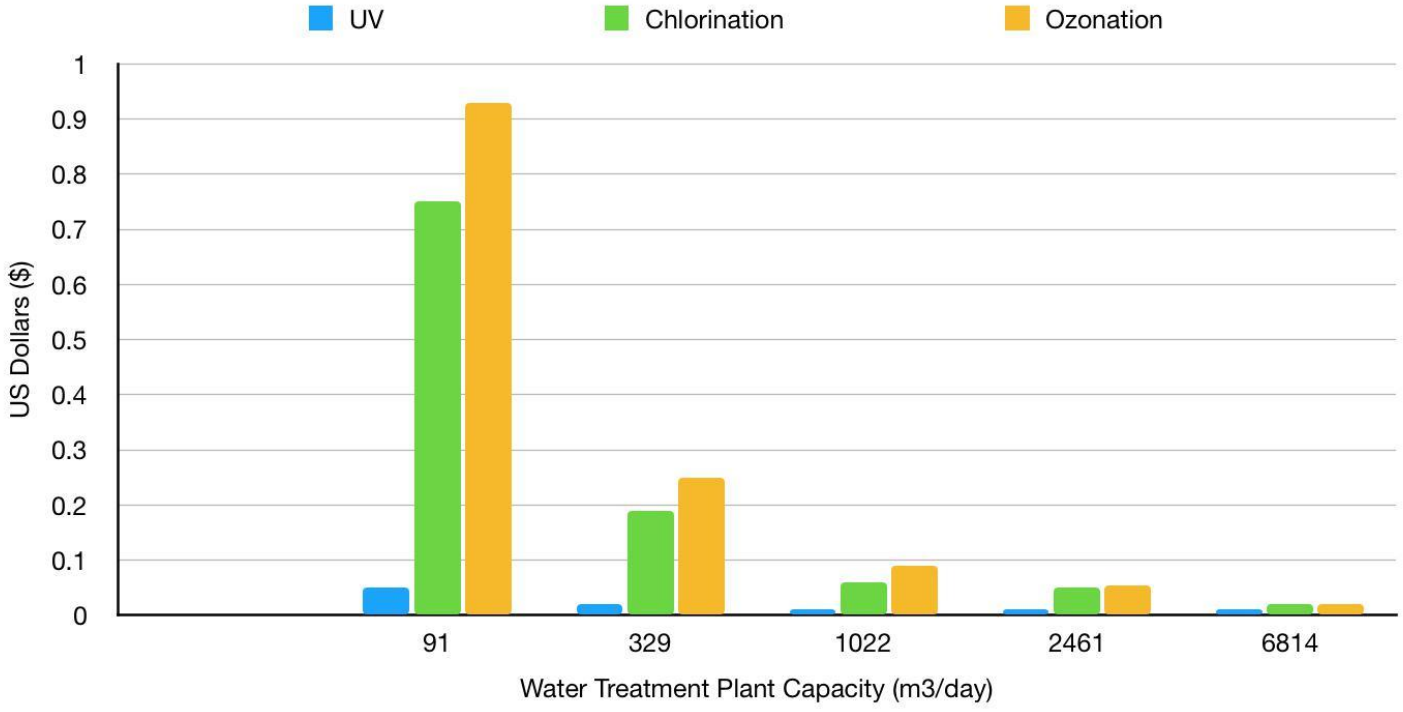
Chlorination vs Quantum Disinfection™ (QD)

The majority of technologies used for water disinfection are divided in between the following methods: Chlorination, UV-lights and Ozonation. Some other chemicals, like peroxide, bromide and silver are also rarely used, manly for bathing water disinfection.

Chlorination

Chlorination is the most common water disinfection method being applied since the beginning of the modern world until today. The majority of the countries introduce chlorination in their laws or recommendations and it is now, commonly accepted worldwide, that concentrations like 1-1.5 ppm of Chlorine are necessary to be in the drinking water in order to sanitize it.

Chlorination is manly applied in water treatment plants. Without an infrastructure, choline is very difficult to handle due to it hazardous chemical nature which limits its application at Point-of-Use. For this reason, the cost of Chlorination (per cubic meter of treated water), it can be really high for small communities or rural areas and villages comparing with UV.



Source: EPA 2016

Quantum Disinfection™

Even if QD is completely different, in several aspects, it can be compared with UV. For example, just like UV, QD is not a filter but kills the bacteria from the water. Just like for the UV reactors, Quantum Disinfection ceramics need a pre-filtration upfront (at least 5 microns) in order to not clog the active media with suspended solids.
On the other hand, QD do not require electrical power in order to eliminate the microorganisms and the killing mechanism is completely different from UV.

It is relatively complex to accurately compare the costs of the QD and Chlorination because the technologies do not have real common aspects besides the end result: water disinfection. We need to consider the following:

- QD is a Point-Of-Use technology, basically used for well water and tap water disinfection, being best applied at water flows up to 12 GPM only;

- QD do not require any infrastructure (functions with gravitational water flows) or any initial costs.

Comparative costs:

- QD can be considered *an alternative disinfection method to Chlorination* for small communities, rural arias and villages. In this case, the cost of QD is approximatively **$0.1/m3 which is 9-10 times cheeper than Chlorination ($0.9/m3)**;

- QD can be consider *a complementary disinfection method to Chlorination* for cities and large communities where the drinking water do not meet the sanitation drinking standards. In this case, the cost of QD is approximatively **$0.1/m3 which is equivalent or, in several cases, 10-15% cheeper than UV** (especially at 12 GPM water flows).

Please visit: http://clairify-quantum-disinfection.eu/

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