

Solar Driven Disinfection



This unit is designed to produce and supply a consistent Sodium hypochlorite solution in terms of quality and quantity. This system uses on-site chlorine production technology, which is powered with a 600Wp monocrystalline PV system. Two batteries with energy excess are acting as a back-up supply, assuring an uninterrupted operation of the most important components even during potential power cuts. The disinfection process itself is expected to exhibit a specific energy demand of approximately 0.07 kWh/m³. Two independent working control units allowing smooth regulations, either manually or automatically, of the whole system without interferences between the main- and the chlorine- production cycle. This is an efficient and sustainable disinfection unit that can produce germ-free irrigation water, being the final polishing step after different nature-based treatment technologies.

For a chlorine-based disinfection to work efficiently several steps are considered to remove remaining Ammonia (NH₄), turbidity and suspended solids, since the consumption of free chlorine as well as the forming of monochloramines inhibit the decontamination effect on microorganisms. Therefore, the main system cycle includes a supplementary biological nitrification step as well as an advanced filtration unit (AFM). Those can be considered as necessary security levels by further removal of any possible residuals of the mentioned substances above the preliminary treatments may failed to eliminate.

KEY POINTS:

- Solar-powered
- Low energy consumption
- Autonomous system
- Containerized system – Plug&PLay
- Additional pre-filtration and nitrification units.
- Monitoring probes - ORP and Chlorine free

MAIN FEATURES

- ✓ On-site production, no storage of dangerous chemicals
- ✓ Dosing of the chlorine solution proportional to the flow rate.
- ✓ Possibility to add an additional UV treatment
- ✓ Implemented online application allows to track and save the collected data of the system
- ✓ Energy consumption ~0,07 kWh/m³
- ✓ Mechanical maintenance needed