


e-GreenWater

Electrolytic Water Disinfection and Recycling System in Greenhouses for Water and Fertiliser Saving and Better Hygienic Security

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INFORMATION ON THE ECO-INNOVATIVE SOLUTION PROVIDER

This eco-innovative solution is the output from the project titled “e-GreenWater” co-funded by the European Commission within the framework of the Competitive and Innovation Program. This solution has been developed by a team coordinated by newtec Umwelttechnik GmbH (DE) in partnership with Newtec Water Systems (B) and SERVYECO (SPAIN).

SHORT DESCRIPTION OF THE ECO-INNOVATIVE SOLUTION

e-GreenWater is an electrolytic disinfection system which enables the re-use of processed water (drain water) with nutrients in greenhouses. It is a chemical-free food safety solution, suitable for different greenhouse plants and their subsequent processing and supply chains. Major advantages of e-GreenWater systems are:

- Effective neutralisation of germs, viruses and fungi which are resistant to customary chemicals
- Better tolerance of roots and leaves that are sensitive to chemical disinfectants or biocides
- Savings of one third of fertilisers by reusing nutrients in recycled process water after effectively eliminating pathogenic germs
- Wastewater-free greenhouses to meet the new EU guidelines
- Replacement of aggressive and polluting chemical disinfectants (biocides)
- Very low disinfection by-products (chlorate) in the vegetables
- Very low energy consumption

INDUSTRIAL SECTOR – MARKET SEGMENT AND ACTUAL APPLICATIONS IN INDUSTRY

20 Food and Kindred Products

INDUSTRIAL CLASSIFICATION - NACE CODE;

10 Manufacturing of food products

1. DESCRIPTION OF ECO-INNOVATIVE SOLUTION

Technical aspects of the eco-innovative solution

The main component of e-GreenWater is an electrolysis reactor, which contains two permanent electrodes. Rainwater and a small amount of plant fertilizer (KCl) are separated from the usual dosing point and are fed into the electrolysis cell. Under certain conditions, a concentrated disinfection solution based on active oxygen and active chlorine is produced. It is dosed into the water stream in an exact concentration, which is constantly controlled by sensor measurements. After the period of disinfection, the disinfectants are decomposed into their original water and ion components. e-GreenWater replaces aggressive and polluting chemical disinfectants and biocides for treatment, transport or storage.

Equipment to be supplied by newtec. Local partners will be trained to install and maintain the equipment. The use of e-GreenWater is unique in greenhouses worldwide. e-GreenWater has been approved and in practice for many years. The solution is suitable only for hydroponic greenhouses. A process water (re)circulation should be installed if it does not yet exist. This enables savings of up to 33% of water and nutrients and avoids waste water pollution. The surplus process water is the so called "drain water", which is heavily polluted because of its high nutrient contents (N,P,K).

Economic and environmental benefits of the eco-innovative solution

Prices for end-users, including 25% service commission, installation & commissioning by local partners:

- 15,000€ without online sensor controlling
- 20,000€ with online sensor controlling (no manual measurements, only controlling measurements by local partner during maintenance and service twice a year)
- Optional 1,500€ for remote monitoring via internet

Return on investment ranges between 1~3 years; savings result from:

- 15~30% more yield and better vegetable quality (more marketable products), lower (zero) risk of loss through plant infection and disease
- 33% saving of nutrients and water
- Savings on chemicals like biocides, fungicides and other measures and investment against virus infection

2. AVAILABILITY OF THE ECO-INNOVATIVE SOLUTION AND BUSINESS PARTNERSHIP

Market readiness, Trade mark, existing market coverage, commercialization strategy.

Today sales and service are available in Germany, Benelux and Spain. Trade mark available: e-GreenWater.

International patents are filed with numbers; "EP 0 862538B1" (EU) and "WO 2010/020270 A1".

Requirements to adapt the solution to the local market and potential applications/market size

Recirculation of process/drain/waste water, if not yet installed.

On-site after-sales services support and the technical assistance requirements

Through local sales and service partners, who will get training from newtec in Berlin, Germany;

Targeted local business partners

Local installation and service companies for greenhouses

Type of local business partnership sought

Re-sellers and service partners