


LESS-WATER BEV.TECH.

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INFORMATION ON THE ECO-INNOVATIVE SOLUTION PROVIDER

This eco-innovative solution is the outcome of the project titled “Innovative combination of water treatment technologies for the reduction of water consumption and waste in the beverage industry” co-funded by the European Commission in the framework of the Eco-Innovation program. This solution has been developed by a team coordinated by the A Due Di Squeri Donato & C. in partnership with Cvar Ltd. And Alma Mater Studiorum-University di Bologna, and was finalized in 2017.

SHORT DESCRIPTION OF THE ECO-INNOVATIVE SOLUTION

A new water treatment and recovery system manage to significantly reduce the use of primary water in beverage preparation plants, through:

- A wastewater collecting, treatment, and recycling system to recover part of the wastewater from the beverage production process, through an innovative combination of technologies, among which pre-filtration, ultrafiltration, reverse osmosis and UV reduce the fresh water consumption and the generation of wastewater.

Main benefits are:

- 60% average recovery of the total drained water to reuse for the drink preparation or other purposes. Considering an average plant with 65.000 l/h of water treatment capacity, this means a total saving of about 33.000 l/h or 14.850.000 m³ per year at the end of the project (99.000.000 m³ per year after two further years) in comparison with the baseline plant.

Industrial sector – Market segment and actual applications in industry

20 – Food and Kindred Products

INDUSTRIAL CLASSIFICATION - NACE CODE;

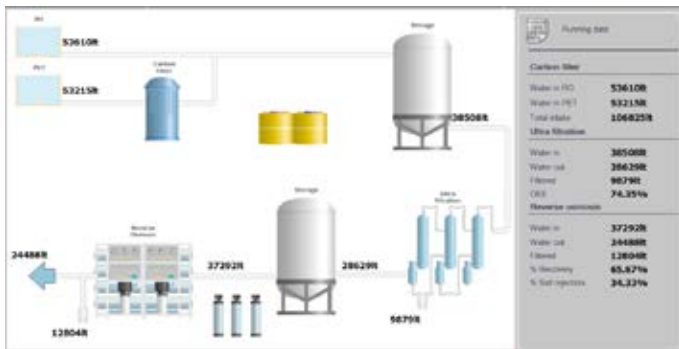
11 – Manufacturing of beverages

1. DESCRIPTION OF ECO-INNOVATIVE SOLUTION

Technical aspects of the eco-innovative solution

The emphasis of the technology lies in the reduction of wastewater from the beverage industry, including organic compounds, chemical products for washing and disinfecting, salts and metals.

In a first step wastewater from different origins of the plant will be collected in stainless steel containers. Next, the water will be filtered in an activated carbon filter system, then pre-filtered and ultra-filtered to reduce the microbiological charge. The main step consists in a reverse osmosis plant to remove solutes from 250 to 15 mg/l efficiency.



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The plant can handle flow rates starting from 45m³/h, and is flexible due to its modularity.

Economic and environmental benefits of the eco-innovative solution

For a bottling line with an annual water consumption of 150 million litres of water, corresponding to a value of €318.000 (using average price of water in Europe, which is €/m³ 2,12), the new technology would generate savings worth about €80.000 every year for the entire economic life of the bottling plant (15 years on average), €1.200.000 in total. These are conservative figures. Pay back period for a plant with 20,000 l/h is 2 years.

Environmental benefits for a plant with an annual water consumption of 150 million litres

Reduction of Greenhouse gas emissions:

CO₂ -152.553 tons / year (-27%);

Methane -278 tons / year (-32%).

Air quality improvements: Particulate matters -478 tons / year (-32%); PM 2.5 -7.376 tons / year (-26%); PM 10 -9.804 tons / year (-26%); Resp. Organics/Inorganics -54.121 DALY / year (-29%).

Reduction/ substitution of dangerous substances: Irritant / Corrosive, -631 tons / year (-30%); Mutagenic /

Carcinogenic -714.000 MBq /year (-26%); Toxic -204.381 kg / year (-32%); Persistent / Bioaccumulative, -12 kg / year (-2%).

Waste management: organic solid waste new treatment 37.500 tons / year.

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

Market readiness, Trade mark, existing market coverage commercialization strategy

The water treatment system is based on modularity and adaptability of the plant so that there is no standard configuration protected with a patent. The system has already been successfully implemented on several locations.

Potential customers are original equipment manufacturers (OEM) and bottling companies.

The commercial action of A DUE will focus on a particular segment of customers (bottlers with medium-high capacity) and in specific geographic areas where the cost of water in relation to its availability and to its consumption leads to a higher willingness-to-pay by the customer.

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

The solution allow an easy assembly to any beverage production facility: it is a standalone and automatic system, with modular configuration, and can be fully customised towards the target wastewater quantity (scalability) and quality (modularity).

Other potential application: The food sector.

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

A DUE S.p.A. has a service office in Casablanca, to carry out the required interventions and coordinate the new installations implementation, to provide technical support and assistance for the development of the new projects in the Maghreb area.

Targeted local business partners

Beverage producers

Type of local business partnership sought

Selling of the innovative solution to beverage companies and to other potential stakeholders