

RECORDED BENEFITS

- Microbiological contaminants reduced by 99%
- Number of fruit can explosions reduced from 10% to nearly 0%
- No decolouring effect on vegetables and fruits
- Fresh water in the process reduced by 25%
- Volume of water to be treated in the wastewater plant reduced

Recovered Water Disinfection for Reuse in Food Processing Facility

Generox™ CSR System

Customer Challenge

A food processing company in Italy was recovering around 300 m³/h of processing water from the production site in a 900 m³ collection tank. The purpose was to reduce the fresh water consumption and to reuse the recovered water as a first rinse wash for vegetables and fruits. Sodium hypochlorite was used in the process to reduce the microbiological contaminants in the recovered water. Results showed that the microbiological counts were high due to the lack of mixing and monitoring and control of the sodium hypochlorite. To improve the situation the customer decided to evaluate an alternative from Solenis.

Recommended Solution

Due to high levels of microbiological contamination and large water volumes, it was decided, in agreement with the customer, to install a Generox™ CSR chlorine dioxide generator with the capacity of 10 kg/h. The generator was installed and started with the target dosage of 0.1 – 0.2 ppm ClO₂ residuals. The Generox CSR generator was positioned at the inlet of the recovered water tank to guarantee the correct residence time of at least 30 minutes to ensure effective oxidation of the microbiological contaminants. The ClO₂ residual level was measured in the outlet pipe the tank. Based on the actual tank dimensions and the water flow rate, the residence time was between 1:30 to 2 hours and proved sufficient to oxidize the microbiological contaminants.

At the start the ClO₂ generator was set at 2 kg/h but after some time 1,2 kg/h was sufficient to match the target of 0,1 - 0,2 ppm ClO₂ residuals. The entire system is automated and there was no need to manually add any biocide.

Results Achieved

The Generox CSR generator was able to meet and exceed the customer expectations:

- Constant and continuous ClO₂ residuals measured during the production campaign of 0.1 – 0.2 ppm
- 99% reduction of microbiological contaminants
- 25% increase of recovered and reused water – resulting in less wastewater processing costs
- No decolouring effect on vegetables and fruits during pre-rinsing with the recovered and ClO₂ treated water – preserve final product quality

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- Reduced number of fruit can explosions due to refermentation in the warehouse from 10% to nearly 0 % – this significantly improved production yield and reduced general processing costs
- Safer working environment for the customer

