

GRUNDFOS HELPS WASTEWATER PLANT UPGRADE WITH SELCOPERM ELECTROLYTIC CHLORINATION SYSTEM



As the economy grows and urban construction rapidly develops, China faces increasing challenges in protecting its water environment. In order to address these challenges, the government launched the 'Action Plan for Prevention and Control of Water Pollution' in 2015. This required wastewater plants in the country to upgrade their water emissions to tier A standard - the highest level. This has meant that a large number of these plants have had to re-examine their disinfection technologies.

As a leading pump manufacturer and water solution provider, Grundfos has successfully introduced its Selcoperm system - the electrolytic chlorination disinfection solution to wastewater treatment plants. It provides a safe, efficient and stable way for wastewater plants to meet the latest regulations.

CURRENT DISINFECTION EQUIPMENT IN WASTEWATER PLANTS

The Fuchun Ziguang Yuliangzhou Wastewater Company is the first and largest wastewater treatment plant in Xiangyang city in Hubei province. It handles the wastewater from three major business districts in the city, as well as an industrial park. All in all, this covers a total of 90 square metres of land and a population of 900,000 people. The wastewater plant's capacity is 300,000 tons of water per day, which means every year, it has to deal with 1.2 trillion tons of wastewater. That's almost the size of the East Lake of Wuhan, the famous scenery spot nearby.

Xia Shuang, Head of Technology at the wastewater plant detailed that they used to kill *Escherichia coli* in the wastewater with ultraviolet (UV) disinfection. He explained, "The UV equipment doesn't have a long enough service life and it consumes a lot of electricity, so the operational cost was pretty high. Since our plant started to upgrade its equipment in 2017, we've had higher standards on emissions and energy-saving, so the UV disinfection wasn't good enough for us anymore."

A SAFE AND EFFICIENT SOLUTION

In addition to the mainstream UV disinfection, liquefied chlorine gas and sodium hypochlorite solution are also widely used as disinfection methods in wastewater plants. The Yuliangzhou Development Zone near the wastewater plant is a tourist attraction in Xiangyang and has a high requirement for safety in the area nearby. Chlorine gas is a highly dangerous substance and would be a major safety hazard to the local environment and tourists if leaked. As for the sodium hypochlorite solution, there are two ways of getting it. One is to buy commercial sodium hypochlorite solution and the other is to produce it on-site by electrolysing a solution of common salt.

The wastewater plant had discussions with designers and engineers, while also making several field trips around the area. Together they compared the possible disinfection applications and decided to replace the UV disinfection system with Grundfos' Selcoperm.

"We need to make sure that the system treats wastewater efficiently in a stable way. The disinfection device must be durable, reliable and safe at all times. Otherwise, the operation of our wastewater plant will have a very large impact on the surrounding environment and the public," Xia Shuang added.

The Selcoperm system was introduced to China by Grundfos in 2015. It has been used in large and medium-sized water plants with a daily processing capacity of more than 200,000 tons. The results have been impressive.

Aside from water plants, Selcoperm can also be used in wastewater plants to ensure their safe operation. The base material is only water and common salt, which is non-toxic and can be stored safely at a low cost. The only by-product, hydrogen, is also properly handled by Grundfos' hydrogen degassing system. In addition, compared to commercial sodium hypochlorite solution, the on-site production eliminates the possibility of heavy metal residuals from the manufacturing process in the chemical plants entering the river water system. This ensures a positive impact on the environment around the plant.

"We are among the first wastewater companies in China to adopt Grundfos' Selcoperm system," said Wei Jianquan, General Manager of the Fuchun Ziguang Yuliangzhou Wastewater Company. "It has greatly improved the wastewater treatment process and solved the problems that we might see during the handling, transportation and storage of commercial sodium hypochlorite solution. The system makes our daily operations safer," he added.



"As the biggest wastewater plant in Xiangyang, our key concern is to make sure the operation is safe and efficient, including in the treatment and emission process," Xia Shuang, Head of Technology of the Yuliangzhou Wastewater Company

SIGNIFICANT COST SAVING AND EFFICIENCY INCREASE

The Yuliangzhou Wastewater Plant is the first project in China to use Selcoperm solutions in a large-scale wastewater treatment plant. The installation and calibration took three months and in June 2019, the entire system officially went online.

"The Selcoperm system has been online for more than several months now and it's been operating efficiently without any safety issues. The disinfection quality is reliable. Our company gets good value out of it because it saves operational costs." said Xu Feng, Project Manager at the wastewater plant, adding, "It's proven that we've made the right call to choose Grundfos Selcoperm."

In terms of management and maintenance, Selcoperm is easy to assemble and has a long service life. Thanks to its modular design, all the components are assembled and tested before shipment, as Grundfos tries its best to prevent after-sales problems.

The wastewater plant is happy about the cooperation. “Grundfos’ value of green and sustainable development is consistent with our corporate vision.” Xia Shuang, Head of Technology at the plant added. “As Xiangyang’s largest wastewater treatment plant, we will continue to optimise operations, upgrade equipment and strive to better protect the environment and serve the local residents. This cooperation makes a positive contribution to protecting the Han River and the living environment of the people of Xiangyang,” she concluded.



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