

Case | Xiangyang, China

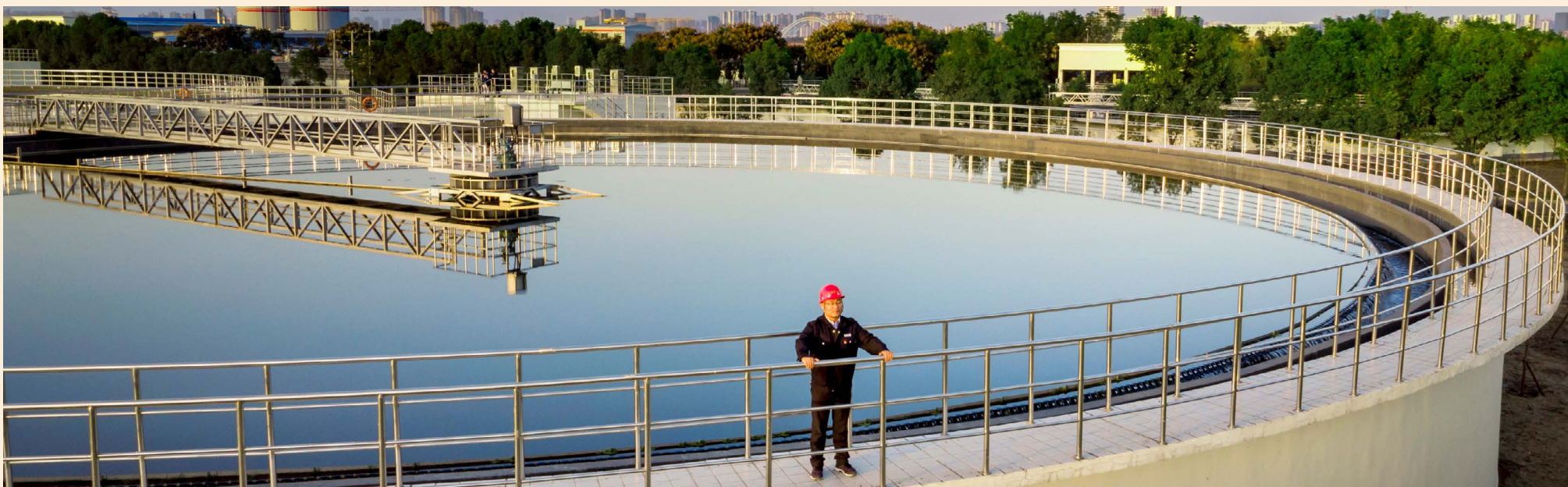
# Grundfos helps wastewater plant upgrade with selcoperm electrolytic chlorination system



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Possibility in every drop



As economy grows and the urban construction develops rapidly, China is facing increasing challenges in protecting its water environment. In order to address these challenges, the government launched Action Plan for Prevention and Control of Water Pollution in 2015, which requires wastewater plants in the country to upgrade their water emissions to tier A standard, the highest level. This means, a large number of these plants 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 that was previously applied in water plants to wastewater treatment plants. It provides a safe, efficient and stable way for wastewater plants to meet the uplifted regulations.

### **Current disinfection equipment in wastewater plants**

The Fuchun Ziguang Yuliangzhou Wastewater Company is the first and biggest wastewater treatment plant in Xiangyang city of Hubei province. It handles the wastewater from three major business districts in the city, as well as an industrial park, all in which covers a total of 90 square-meters of land, with 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 tones of wastewater water – almost the size of the East Lake of Wuhan, a famous scenery spot nearby.

Xia Shuang, head of technology in the wastewater plant told us that they used to kill *Escherichia coli* in the wastewater with ultraviolet (UV) disinfection. “But 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,” Xia says.

### **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 of safety on the area nearby. Chlorine gas is a highly dangerous substance, and can be a major safety hazard to the local environment and tourists if it is 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 electrolyzing a solution of common salt.

The wastewater plant had discussed with the designers and engineers and paid 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 any time. 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. And the results have been impressive.



"It's proven that we've made the right call to choose Grundfos Selcoperm," **Xu Feng**, project manager at the wastewater plant.

Apart from water plants, Selcoperm can also be used in wastewater plants to ensure safe operation. The base material is only water and common salt, which is non-toxic and can be stored safely with 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, which will have a positive impact on the environment around the plant.

"We are among the first wastewater companies in China to adopt Grundfos' Selcoperm system," says 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."

### 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 went online officially.

"The Selcoperm system has been online for more than six 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 the operational costs." Xu Feng, project manager at the wastewater plant says. "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,



"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

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, head of technology of the plant added. "As Xiangyang's largest wastewater treatment plant, we will continue to optimize 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 said.

Watch video

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