

SALT BRINGS SAFETY AS NEW DISINFECTANT SOLUTION IN CHINESE WATER PLANTS



“Our plant has been using this very dangerous chemical substance,” says Zhi Haibin, the plant’s manager, of chlorine. Chlorine gas has been the common disinfectant at water plants in China until regional governments began outlawing its use for safety reasons.

THE SITUATION

It is cheap. It is relatively easy to work with. And if there is a leak or an accident, it is deadly – not only to the people nearby, but also to the surrounding community.

“It” is chlorine gas – the disinfectant of choice that has been used for many years in water treatment plants all over China.

Some communities and plants are beginning to value long-term safety higher than the material cost, however. One of these is the Haiyan County Sandi Tap Water Treatment Plant, Ltd., south of Shanghai. In operation since 2010, the plant serves about 400,000 people with about 110,000 tonnes of processed water a day.

“Chlorine gas is an extremely toxic chemical,” says Wu Junhui, Section Chief of Operations. “There are a lot of hidden dangers. As soon as you get any kind of leak in the chlorine, it contaminates the air, impacting both people and animals. Shipping all those tonnes of chlorine bottles is very dangerous.”

“Our plant has been using this very dangerous chemical substance,” says Zhi Haibin, the plant’s manager, adding that everyone from its customers – the local citizens – to its workers were

put at risk. “This has been a serious safety problem both in terms of water quality and the safety of our operators. Because every time we replace the bottles of chlorine, our workers must change them manually. Which means that you’re handling dangerous chemicals each time. So for us, worker safety and operational safety was very unreliable.”

THE SOLUTION

Jiaxing Prefecture – the nearby governing city – in fact began bringing awareness to the dangers of chlorine gas disinfection in 2011, eventually passing legislation in 2015 that will forbid the disinfectant at all local water plants.

In 2016, the Haiyan Sandi Tap Water plant launched a competitive tender for the supply of a new disinfection system. After testing several types of systems, the plant tapped Grundfos and contractor Zhejiang Tianxingjian Water Utility Co., Ltd. for designing and installing the on-site, Selcoperm electrochlorination system. “We treat the system like it’s our own child,” says engineer Zhou Ming from Zhejiang.

For the Selcoperm, only water, common salt and electricity are needed for production of a hypochlorite solution. It was commissioned and working by the end of 2016.

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Wu Junhui, Chief of Operations at the Haiyan plant, takes a water sample back to the lab for testing.

Zhi Haibin says the Selcoperm has been reliable and has simplified operations. “The level of automation is very high now,” he says. “You don’t need people to operate it. The only person you need for operations is someone to add the salt. It has reduced our number of workers, reduced our labour intensity and increased the plant’s safety.”

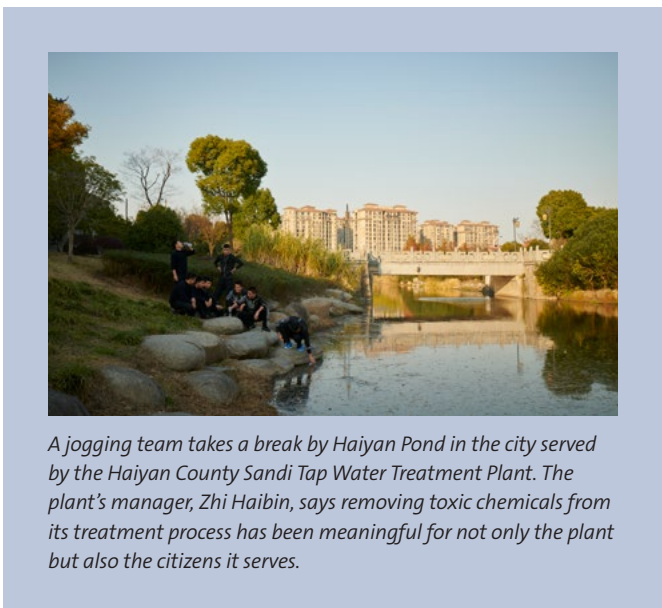
THE OUTCOME

“We have removed these toxic chemicals, and this was naturally very meaningful for our plant, for our community and for all of society,” says Zhi Haibin. “I believe that all large-scale water resource management systems will follow this pattern.”

“After using this on-site sodium hypochlorite processing system, we’ve solved one of our most important issues: eliminating a

critical dangerous substance. In terms of our industry, including the social and environmental concerns, this is a very big change. A very big improvement.”

He adds the trend of using systems like the Grundfos Selcoperm is catching on “across the tap water disinfection systems of the entire country. It’s gradually expanding outward. Because human safety is the most critical. It’s one of the most critical concerns.”



A jogging team takes a break by Haiyan Pond in the city served by the Haiyan County Sandi Tap Water Treatment Plant. The plant’s manager, Zhi Haibin, says removing toxic chemicals from its treatment process has been meaningful for not only the plant but also the citizens it serves.



GRUNDFOS SUPPLIED:

The Selcoperm electrochlorination system uses only water, common salt and electricity for production of a hypochlorite solution. [Read more](#)

[See video](#)