Using electrolysis to safely disinfect drinking water

Harmless cooking salt takes the place of critical chlorine gas

Focus on

Potable Water Treatment

The challenge: to supply large quantities of germ-free drinking water

Day in, day out, communities of all sizes need to ensure the supply of clean drinking water to millions of people. Regardless of whether their starting point is ground water or surface water from rivers, for example, post treatment of the raw water has to meet the hygiene requirements stipulated in the respective national regulations. Many waterworks therefore use chlorine gas or sodium hypochlorite for the purpose of disinfection.
But the risks involved in transporting, storing and handling these aggressive chemicals are significant.

The solution: using cooking salt and efficient electrolysis systems

Modern electrolysis systems, which turn a harmless salt solution into a weak chlorine solution on site offer an alternative to traditional chlorination. This chlorine solution contains less than 1% chlorine and does not therefore present any major potential dangers.

Reliable disinfection for the long term

Open tubular cell electrolysis is very well suited to the disinfection of drinking water.
Thanks to the precise manufacture of the system and optimised cell design, little salt and electricity is consumed yet the process delivers a chlorine concentration of 8 g/l in the final product. The salt needed is dissolved,
and the chlorine electrolysis process produces the required volume of hypochlorite solution. Fluctuations in daily demand can be compensated for using a hypochlorite tank.
The disinfection solution is fed to the points of injection by metering stations.

Systems for both large and small capacities

ProMinent has developed the CHLORINSITU IIa range of systems especially for disinfecting drinking water. The three different product range sizes can cover the demand typical of drinking water disinfection: from treating well water in a small town right up to drinking water works supplying cities of several million.

The small design is a ready-to-connect electrolysis system, in which all components are housed in one single cabinet. A modular system of project-based components is available for larger quantities: electrolysis system with rectifier and degas-sing tank, water treatment as well as filtration, softening and temperature optimisation, salt-dissolving and supply equipment, product storage tanks, metering stations and possibly a higher-level process controller. The electrolysis system's standalone PLC can be incorporated into the customer's higher-level control, thereby allowing the entire system to run fully automatically.

Alternative to chlorine gas: using electrolysis for disinfection

- Economical and reliable drinking water treatment
- Harmless cooking salt takes the place of high-risk chlorine gas as the raw material
- A fresh chlorine product always on tap rather than a decomposition of the chlorine content over time in commercial goods in stock
- By deploying a temporary solution (using diluted sodium hypochlorite for disinfection), systems can be changed over from chlorine gas to cooking salt during ongoing operation
- The minimal maintenance requirement means that the high-tech electrolysis system has a very long service life
- ProMinent CHLORINSITU IIa XL is designed especially for high capacities
- Modular system concept for flexible adaptation to project requirements