ELIMINATING HANDLING OF TOXIC CHEMICALS THE WAY OF THE FUTURE

With sales up nearly 40% year-on-year since the height of the Global Financial Crisis, Australian Innovative Systems (AIS) reports that eliminating the delivery, storage and handling of toxic chemicals for water disinfection is the way of the future.

One of the many benefits of disinfecting water via electrolysis – as is the case with AIS chlorine generators, is eliminating the expense and potentially hazardous practice of delivering, storing and handling chemicals.

Not only do these toxic chemicals account for considerable expense over time, they bring with them many Occupational Health and Safety considerations. While mercifully infrequent, accidents do happen and when they do, spills and mishandling can cause serious injuries to staff, members of the public – and a company's reputation.

CEO of AIS, Elena Gosse reports that removing the costs and risks associated with maintaining supplies of toxic chemicals on-site is one of the major benefits for her company's disinfection technology.

"Our commercial sales are at the highest levels we've seen in the past two years," Elena says. "We are getting more and more enquiries for our range of products from new commercial-scale facilities as well as older facilities looking to upgrade from traditional chlorine dosing to disinfection by electrolysis."

Electrolysis is a tried-and-tested technology. In fact, many of the scientific laws that guide electrolysis research and development today have been in use for 180 years. Electrolysis has been proven to be safe, robust and reliable.

Inside an electrolytic cell an electrical current is passed between two electrodes through an electrolyte (water containing minerals like sodium chloride). Hydrogen ions move to the cathode and turn into hydrogen. Chloride ions move to the anode and turn into chlorine. Meanwhile sodium and hydroxide ions get left behind and stay in the solution. This provides all the necessary ingredients for the automatic formation of Hypocholous Acid, an effective and proven water disinfectant (commonly known as liquid chlorine). All of this occurs not only within the electrolytic cell, but inside the water itself, so no toxic disinfectant needs to be stored on-site.

In explaining why electrolysis is now more readily available in the marketplace, Elena says that it is AIS that made it so. "Historically people associated electrolysis technology with mostly residential saltwater pools or commercial saltwater aquatic centres. In fact, our AutoChlor brand is a leader in saltwater chlorination. In 2009 AIS launched EcoLine, which created a chlorination revolution in the industry. EcoLine brings the benefits of inline electrolysis to facilities running at TDS levels of as low as 1,200 ppm, vastly lower than the 5,000 ppm associated with many commercial salt water systems."

AIS manufactures its own Anodes to ensure optimal quality control and performance in every AIS unit. Every system features a ruthenium compound-based catalyst, which is painstakingly applied and cured one microscopically thin coat at a time. This coating increases the productivity of the unit, meaning it enables the electrodes to produce more disinfectant output for a given level of energy input. The catalyst, therefore, plays an energy-saving role.

When people enter swimming pools, amines enter with them. Amines are found in perspiration and urine. If the level of free chlorine in a pool is low (relative to the amount of amines), chloramines may form.

In non-AIS 'traditional' chlorine injection systems chloramines may linger in and around the pool until the system is shock-dosed – which can only be done when the pool is empty for a long period (eg: overnight). Shock dosing on this scale consumes a lot of chemicals and may contribute to rising TDS levels, requiring the addition of fresh water to dilute it.

With inline chlorination by electrolysis, however, the concentration of chlorine within the electrolytic cell is such that water is being shock-dosed every time it passes through the cell. When water passes through the cell (multiple times each day) any chloramines present are oxidised. This may explain why some indoor pool operators who switch from traditional chlorine dosing to inline chlorination by electrolysis report a noticeable improvement in indoor air quality.

With innovation embedded in AIS's corporate culture, the level of increasing sales and a number of new products on the drawing board, AIS is confident about the future.

"Our manufacturing facility has been running at full capacity over the past few months and we have seen our technology embraced by aquatic centres, water parks, competitive swimming facilities and the hotel and resort market," Elena says. "We're particularly thrilled to have been chosen as the primary disinfection technology for three swimming pools that will be used during the Gold Coast's 2018 Commonwealth Games."

FLEXIBLE RANGE OF FILTER NOZZLES TO FIT ANY SYSTEM

With a wide diversity of filtration systems in use throughout Australia, there are also substantial variations in the types of filter nozzles used. Tecpro Australia's large and flexible range overcomes repair and maintenance challenges, with filter nozzles available to meet any specification.

For maintenance engineers around the country, keeping water filtration systems in good working order can be difficult, particularly in the case of older systems.

"In our work we come across massive differences in the types of filter nozzles in use," says Graeme Cooper, Managing Director of technical solutions specialist Tecpro Australia. "There are many variations in slot widths, thread and stem sizes as well as the material the nozzles are made from. When you're replacing them, it's vital to have a close match for their dimensions and also to ensure the fabrication is suitable for local conditions."

Mr Cooper says the materials used in the construction of filter nozzles affect how well they perform in different operating