Leadership from listening

An international, yet close-knit, company pioneered a new type of water disinfection – and is still looking to improve fresh water quality and distribution, writes Kylie Evans.

Australian Innovative Systems Ltd (AIS) is an international company delivering water disinfection through electro-chlorination. Its commitment to sustainability and the development of environmentally friendly products has brought it awards from around the world and a successful business exporting to 59 countries.

To what does the company attribute its success?

"Listening to our customers", says executive director Elena Gosse.

"AIS began life servicing the swimming pool market. Our Autochlor brand offered salt-water chlorine generators. While this is an excellent product where fresh water is at a premium and sea water is available – for example, resorts near the sea – most pool owners have to add salts to use this product.

"Our customers wanted something to be able to disinfect fresh water without adding chemicals. We decided to invest in research and development to see if we could meet that need."

The Ecoline system, released in 2009, is believed to be the world's first system to disinfect fresh water. Ecoline is an on-site chlorine generation plant capable of producing chlorine and other oxidants in fresh water from the small amount of natural salts and minerals already present in the water.

Gosse reports that AIS customers also wanted to save electricity.

"In 2000 we were the first company to develop a product using switch mode power supply rather than transformers to convert AC (alternating current) to low voltage DC (direct current), making the product lighter, smaller and more energy efficient. We also recently developed a new anode material, which both removed our reliance on imported anodes and proved far more effective at producing chlorine. The anode material is part of the electrolytic cell where water flows between positively (anode) and negatively (cathode) charged plates, and the anode plates are coated with a catalyst which converts minerals in the water into chlorine when an electrical current is applied."

Ecoline is now able to produce up to three times more chlorine than other systems, with less than half the electricity consumption. Also, since the new system makes the chlorine for disinfecting fresh water, it does not need any chemicals to be added and eliminates the risks and costs involved with chemical handling, transport, storage and dosing.

"It is a cleaner, greener and safer system to disinfect fresh water," says Gosse.

THE COMPANY AND MARKET GROWTH

AIS was first established in 1974 and bought by Gosse's husband Kerry in 1992. His vision was to become a market leader by focusing on switch mode innovation, dominance of the commercial chlorine generator market and anode coating innovation. Gosse joined the team in 1995 with the aim of developing strategies to achieve these.

With a commitment to quality and significant investment in research and development (R&D), AIS has achieved these goals and more. Some of the more recent awards the company has received for its groundbreaking products are the:

- international Stevie Award for Most Innovative Company of the Year in Asia, (subcontinent, Australia and New Zealand) – 200); these awards are known as the Oscars of the international business world
- Telstra Business Awards: Most Innovative Product – Ecoline (2009)
- Gaia Environmental Awards 2009 Gold Winner – Ecoline (2009);
- Piscina Innovation Award BCN – Ecoline (2009); and
- SPLASH! 2010 Environmental Awards: Most Environment-Friendly Sanitisation Product Award – Ecoline (2010).

AIS expanded globally in 1995, realising that its swimming business suffered through the Australian winter.

"We believed that our products were globally competitive, and that the European pool market would enable us to improve our year-round returns. This proved correct, and the Autochlor systems were very successful in that market," says Gosse.

"We continued to develop these systems at the same time as developing Ecoline. Research on two key markets, the United States and the Middle East, showed that both required a product capable of surviving extreme environmental conditions and able to function with water of any salinity. We have now achieved this in both domestic and commercial Autochlor machines, which are able to deal automatically with a salinity concentration of 0.2–35.0 per cent compared with an industry standard of 0.4–0.6 per cent.

"Now, the Ecoline system has answered another market need and is generating huge support from our customers in Australia and overseas."

IMPROVING WATER DISINFECTION

Most excitingly, the Ecoline system has opened up a whole new business for AIS.

The Ecoline product has proven to be not just for swimming pools, but for any application where you need to disinfect water, including drinking water, wastewater / sewerage, recycled water, grey water, irrigation, food processing plants, reverse osmosis, desalination, water features, cooling towers and other industries.

"We have many city councils throughout Australia interested in using Ecoline for wastewater plants, including one large-scale testing site and one small-scale operational site with two major councils in south-east Queensland. We are rapidly moving into the cooling tower business for large buildings, especially for many of Australia's hospitals," Gosse says.

It is a cleaner, greener and safer system to disinfect fresh water.

"We even have a Canadian egg processing factory that is using Ecoline to improve the quality of their wastewater and dramatically reduce the costs for municipal sewer discharge."

Customer insight not only drove the development of Ecoline, but even showed AIS that its proprietary technology could be applied to other water-related applications. While completing a project one of the AIS R&D team was visiting a testing site when a child swimming in the pool whispered, "the water is so good, I am drinking it". This sparked the interest of the researcher and back at the lab he tested the ability of Ecoline to produce water good enough to drink. A positive result led to further testing.

An independent study by Simmonds and Bristow National Association of Testing Authorities accredited laboratory has now confirmed that Ecoline can effectively treat drinking water showing that the system is able to produce oxidants to kill bacteria in fresh water. Indeed, the study revealed unexpectedly high oxidant levels making Ecoline even better for wastewater disinfection than anticipated. The analysis showed that chlorine represented 44 per cent of the total oxidants produced. The remaining 56 per cent of oxidants are stronger than chlorine and achieved an even greater disinfection effect.

The study also showed that unwanted by-products for the process are well within acceptable drinking standards, confirming Ecoline's applicability for drinking water. In Western Australia Ecoline is already being used to disinfect drinking water for 1,200 workers in mining sites.

"AIS defines Ecoline as the water treatment system of the future. This environmentally friendly technology is tailored to fulfil the highest quality standards – it is simple, robust, economical and meets present and future demands. This technology sets the benchmark in the industry and has no comparison worldwide," Gosse says.

VARIETY, PEOPLE AND TRAINING

AIS is now further expanding the Ecoline market by developing a smaller system.

"While the large systems are great for urban areas, we also received a lot of interest from councils in rural and remote areas, wondering what was available for small communities," Gosse says.

"So we are working on a smaller scale version that can be used for rural and remote communities. We have requests from local councils in south-east Queensland who may purchase up to 20,000 small Ecoline units for residential-scale non-centralised wastewater treatment.

"It's also wonderful to think that a smaller system would be invaluable in developing countries. We hope that our work will help everyone to have the access to clean water that should be a basic human right.

"At each step along the way, listening to our customers has been the key to driving change. It's nice to think that by helping meet our customers' needs, we might end up helping the world."

Gosse believes another key to their success has been the AIS team.

"We have owned this business for 19 years and many of our staff have been with us and grown as the company has grown," she says.

"All our product managers started on the workbench and are also part of our R&D team, so they know the company and our products backwards, forwards and upside-down. At the same time, since they are talking to customers any feedback goes directly to R&D, to help us improve our products.

"We are particularly proud of our record with training women. When we started we had one female receptionist, now 20 per cent of our engineers are female and we are keen to offer more opportunities to female engineers just starting out."

Growing from three employees in 1995 and an annual turnover of $100,000, AIS now has more than 60 staff and three manufacturing plants and a turnover of $8.7 million. AIS also plans to expand its production with a new building being set up to add to its existing plants. AIS holds around 30 per cent of residential and 80 per cent of commercial market share in Australia and these figures continue to rise.

"We are constantly moving forward. Over the last two years we have invested over $500,000 in research and development, and will continue to invest in our technology and our people."