

## Applications of Reverse Osmosis in the Food Industry

Advanced Watertek contracted to design and manufacture a large scale commercial reverse osmosis system for one of the world's largest snacks companies.



**United Arab Emirates, Dubai, Apr 27, 2021 ([IssueWire.com](https://www.issuewire.com)) - Ever eaten an Oreo?**

Chances are it was manufactured with our water.

In 2017, Advanced Watertek landed a tasty job. A sweet gig! Our team was contracted to design and manufacture a large-scale commercial reverse osmosis system for one of the world's largest snack companies. The multinational corporation had just broken ground on a massive undertaking - a \$90M USD food manufacturing plant, specifically for biscuits.

Located in the Middle East, the facility was being purpose-built from scratch and was filled with state-of-the-art technology and automation.

Completed in 2018, the massive food processing facility stretches over 250,000m<sup>2</sup>. At peak operation, the factory produces 60,000 **tonnes** per year of food goods with 10,000 biscuits **every minute!**

The food company had two non-negotiable outcomes that they needed to achieve with their water supply. If you're currently working within the food production industry, they will both sound familiar to

you.

The first was to create a reliable source of water. Regardless of operating conditions, an 'always-on' facility like theirs requires a constant supply of high purity water. They operate in a very competitive market, and any hit to production capabilities would leave them unable to fulfill previously agreed-upon targets.

Secondly, the quality of the product water had to be 100% as specified, with no deviation over time, and unaffected by external factors. Water used as ingredient water in the food industry must comply with all local standards, plus any government regulations and export market requirements.

Businesses in the food industry know the importance of water purity on food safety and risk control. For a global company, with facilities across the world producing the same product ranges, there's another benefit to claim from a consistent water supply. Homogenization is key - the famous biscuit taste must be replicated across the world in all production sites. Whether the customer is snacking on a biscuit made in Europe, Indonesia or Bahrain, any biscuit should taste the same.

The completed water treatment system uses a dual-train, skid-mounted design. Designing commercial reverse osmosis equipment in a dual train configuration gives clients greater flexibility in arrangements. The system was assembled, customized, and tested at the site.

High-quality stainless steel is a hygienic choice for the skid or skeleton. We pride ourselves on our craftsmanship - our welders are highly qualified and among the best in the business. There's no place for bacteria to hide in the joints. Systems located alongside food processing equipment must stand up to industrial washdown and regular sanitation procedures. By using cleaning-in-place protocols (CIP) the reverse osmosis membranes can be effectively cleaned with minimal disruption, using [standard chemicals](#).

The water treatment system processes chlorinated feed water from a municipal source. Incoming water quality had roughly 400ppm of total dissolved solids, known as TDS. The two separate trains of the system use high-quality [brackish water reverse osmosis membranes](#), in conjunction with sediment prefiltration, to bring the product water down to just under 40ppm - suitable for all process applications. Chlorates, phthalates, and bromates are also eliminated.

Reverse osmosis, in essence, brings the salinity of water down to zero ppm, or as near to zero as operators require for their particular process. Water used as an ingredient in food and beverages must be free of any unwanted impurities, including undesirable tastes, odors, and colours. We achieve this by building multiple layers of filtration into a water treatment system. Multimedia filtration tanks, filled with sand, gravel, and anthracite layers, are the first step. Then, cartridge filtration takes the feed water through five, then one-micron filtration. Finally, the water is passed to the reverse osmosis membranes, which prepares it for use in food production.

Membrane separation technology can remove a variety of dissolved solids, including salts, from water. Within the food industry, associated membrane separation technologies including nanofiltration and ultrafiltration are commonly used in milk and juice production, alcohol removal from spirits, or egg white concentration, to name a few applications.

The possible applications of reverse osmosis within the food industry are numerous - and growing. Reverse osmosis becomes more common every year within food processing facilities. The beverage industry uses RO in the production of beer, wine, and spirits, as well as soft drinks and juices. Infant

milk production demands high purity ingredient water. Dairies and meat processing facilities, as industries adjacent to food production, also have many requirements for high purity water, including hygiene & food security considerations, plus regular washdown.

The food company utilise their reverse osmosis water for three different purposes:

- Food production
- Food production equipment
- Cooling towers

Food companies can find many benefits through investing in a reliable water supply. Consider the financial benefits that reducing your water footprint can provide. Efficient systems require little maintenance, lowering operational expenditure. Reverse osmosis can purify water without using large quantities of harsh chemicals, so your environmental footprint can also be reduced. The addition of a UV disinfection system can eradicate bacteria, viruses, algae, and fungi. Removing these biological contaminants from your water will help your production environment stay clean and risk-free.

Reverse osmosis is a versatile technology. It allows operators in the food industry to generate high purity water from alternative water sources that traditionally may not have been considered economically viable. What could reverse osmosis help your business achieve?

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**Advanced Watertek** has successfully completed a number of water treatment projects for the food industry across the globe. If you're wondering about possible applications for reverse osmosis within your particular industry, you're in the right place. Get in touch with our team today at <https://www.advancedwatertek.com/>.

If you're already up and running with a water treatment solution, we've set up **Desaltek** to assist your business with a comprehensive aftermarket supply of spare parts and consumables. You'll find the filters, chemicals, and spares that you require on our website, all available to order online. Browse range and pricing here: <https://desaltek.com.au/collections/all>. You can also reach out to us for regular repair, maintenance, or refurbishment of your system on <https://www.advancedwatertek.com/maintenance-and-operation>



## Media Contact

Advanced Watertek

mktg@advancedwatertek.com

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