OXI-NOVA

ELECTRO-CHEMICAL DISINFECTION (ECD) TECHNOLOGY

MADE IN BRITAIN

ELECRO ENGINEERING

Improving water heating and sanitisation globally since 1997

EN

Introduction

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ELECTRO-CHEMICAL DISINFECTION (ECD) TECHNOLOGY

Introducing OXI-NOVA – the ultimate solution for pool water treatment. Engineered for safe, efficient, and cost-effective disinfection, OXI-NOVA employs advanced, patented Electro-Chemical Disinfection (ECD) technology. This cutting-edge system generates a powerful blend of oxidants on-site, harnessing the benefits of chlorine, chlorine dioxide, ozone, and hydroperoxide compounds. It ensures superior water purification while eliminating harmful by-products such as chloramines, typically associated with traditional chlorine treatments. With OXI-NOVA, you can enjoy crystal-clear water and a healthier environment for swimmers.

What is ECD technology?

The Electro-Chemical Disinfection (ECD) technology in the OXI-NOVA device is a patented technology that modifies the chemical properties of water through a low-voltage electric current, producing highly reactive, effective and eco-friendly mix of oxidants directly from a salt solution. Using a specially designed electro-chemical cell – integrating a unique ceramic diaphragm – OXI-NOVA produces the necessary amount of disinfectants on-site and on-demand, eliminating the need for storing dangerous chemicals. Additionally, this method prevents the formation of harmful by-products, like trihalomethanes (THMs), keeping the water clean and safe.

Dimensions

How does it work?

At the core of OXI-NOVA is the patented ceramic module (CM), an electrochemical cell with an anode, a cathode, and a porous ceramic diaphragm. Here's how it operates:

1. **Saline injection:** A concentrated saline solution from the brine tank is fed into the electrochemical cell

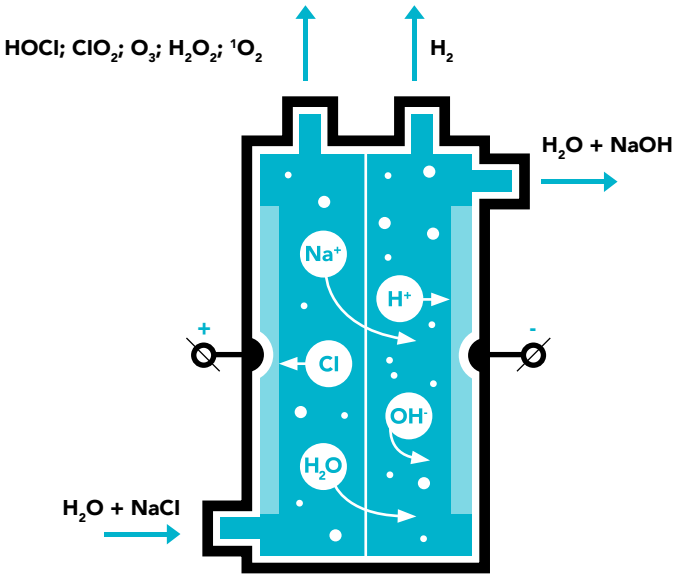
2. **Electrochemical reaction:** A controlled electric current is applied across the cell, causing the saline solution to split into two different streams: anolyte and catholyte

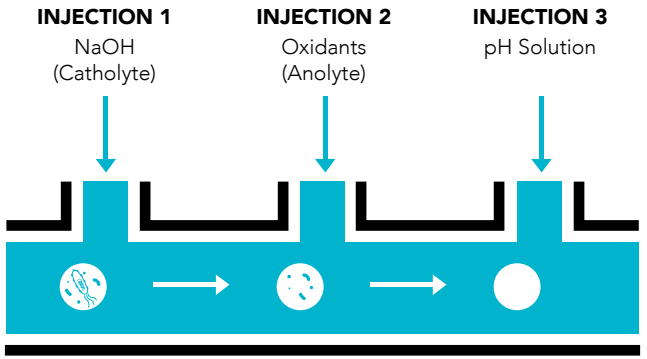
3. **Anolyte stream:** This stream contains a potent mix of oxidants, including hypochlorous acid (95-96%), chlorine dioxide (3-4%), ozone (0.5-1%), and hydroperoxide compounds (hydrogen peroxide, singlet oxygen - 0.2-0.5%)

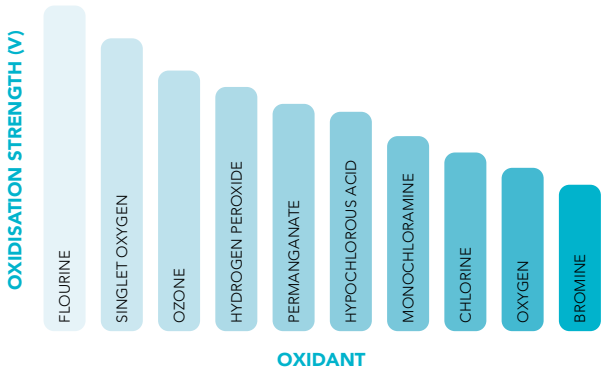
4. **Catholyte stream:** Rich in hydroxyl ions (OH-), it helps stabilise the pH of the water and enhances clarity by acting as a flocculant

5. **pH controlling:** OXI-NOVA uses integrated pH sensor to measure and, if necessary, automatically doses pH correction solution through a separate dosing pump to keep the water in balance

The unique ceramic diaphragm of the module ensures that the generated oxidants are isolated in a separate stream, preventing cross-contamination and optimising disinfection. Requiring only water, salt, and electricity, OXI-NOVA is a cost-effective and eco-friendly alternative to conventional treatments.







ASPECT	OXI-NOVA	SODIUM HYPOCHLORITE	CHLORINE DIOXIDE	OZONE	HYDROGEN PEROXIDE
Efficiency	**YES**	YES	YES	YES	YES
Safety	**YES**	YES	NO	YES	YES
Cost-effectiveness	**YES**	NO	NO	NO	NO
Low concentration of DBPs	**YES**	NO	YES	YES	YES
Prolonged effect	**YES**	YES	YES	NO	YES
Environmentally friendly	**YES**	NO	NO	YES	NO

Why choose mix oxidants over traditional chemicals?

Why settle for one oxidant when OXI-NOVA's mixed oxidants offer multiple benefits? OXI-NOVA's technology brings a range of benefits that go beyond traditional chlorine-based systems:

- **Stronger disinfection:** Mixed oxidants have a higher oxidation-reduction potential (ORP) which enhances their ability to eliminate bacteria, viruses, algae, and other contaminants more effectively than single oxidants like chlorine or hydroxyl radicals
- **Reduced disinfection by products (DBPs) formation:** Traditional chlorine treatments often lead to the formation of chloramines and trihalomethanes (THMs), both of which are harmful to health. Mixed oxidants reduce significantly the DBPs formation, resulting in safer and cleaner water
- **Enhanced stability:** The mix of oxidants balances water chemistry, reducing pH fluctuations and minimising the need for extra chemical treatments
- **Broad – spectrum activity:** OXI-NOVA's mixed oxidants are effective against a wide range of water pathogens, including chlorine-resistant species, like Cryptosporidium, ensuring a comprehensive water safety for swimmers

Applications

OXI-NOVA is designed specifically for residential swimming pools of various sizes, providing a complete solution for water cleaning and disinfection. It ensures crystal-clear water, balanced pH levels, and safe swimming conditions, making it ideal for homeowners seeking a reliable and easy-to-maintain pool treatment system.

Energy and cost efficiency

OXI-NOVA's patented ECA technology is designed to deliver maximum cost savings with minimal energy consumption:

- **Low Power Consumption:** The electrochemical cell operates at a low voltage and utilises modular configuration that optimises energy usage based on pool size and requirements
- **Long Service Life:** The ceramic diaphragms and electrode materials are engineered for a lifespan exceeding 50,000 hours of continuous operation, significantly reducing maintenance and replacement costs
- **Automated Operation:** The sensors and automated dosing system minimise manual intervention, saving time and reducing the risk of errors

Features

OXI-NOVA is packed with technical features that make it a top choice for a modern pool management:

- **Patented ECA Technology:** Produces powerful oxidants (HOCl, ClO_2, O_3, H_2O_2, $^1O_2$) that are added directly to the pool, eliminating the need for traditional chemicals
- **On-site Oxidant Generation:** Automatically generates disinfectants on-site, reducing the need for chemical storage and handling
- **Low Energy Consumption:** Operates at low voltage, making it energy-efficient for residential swimming pools
- **Real-time monitoring*:** Integrated sensor continuously checks oxidant levels, ensuring optimal disinfection without overuse
- **Automated pH control:** Built-in dosing system automatically adjusts pH levels, keeping water chemistry balanced
- **Long-lasting components:** Durable electro-chemical cell with lifespan of over 50,000 hours, minimising maintenance
- **High-capacity chlorine production:** Capable of producing up to 50 grams per hour of free available chlorine, making it effective even in high-demand situations
- **Caustic Soda as flocculant:** Produces caustic soda to assist in flocculation, enhancing water clarity
- **User-friendly interface:** Simple control panel for easy monitoring and adjustments.
- **Reduced Disinfection By-products:** Produces fewer by-products (such as chloramines) compared to traditional chlorination, ensuring safer water
- **Environmentally friendly:** No need for bulk chemicals, reducing environmental impact and operational costs
- **Safety features:** Includes automatic shut-off and alerts for safe and reliable operation

*Optional sensor required for real-time monitoring

WATER + SALT + ELECTRICITY

...all you need for a cost-effective and eco-friendly alternative to conventional water treatments.

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