

Swimming Pool Chlorination



DE NORA
Dare. Develop. Deliver.

The luxurious pool experience

Say goodbye to chlorine odors, irritated eyes, hair damage and faded swimsuits caused by excessive disinfection by-products and over chlorination. Common salt and electricity generate a consistent and proper amount of pure chlorine solution in a safe, simple and cost effective way to disinfect pools. We are committed to improving your recreational water quality, while using a green, recyclable treatment process.

Our Legacy

Since the 1970's, we have been the lead in innovation for salt water pool chlorination, from the initial static polarity technology to the self-cleaning product based on current reversal technology.

In 1982, the first **DSA® DN240 electrode** was manufactured, and has shown outstanding performance ever since making it the most validated anode in the field to date. We intend to continue growth and maintain our leadership in the market by continuing to offer unique solutions, know-how and development capability.



DSA® DN240 electrode

DSA® DN240 electrode for swimming pool electrochlorination is a specialized technology found in all major swimming pool equipment manufacturers worldwide. The versatility of the product allows for use in residential, spa and commercial applications.

Benefits of Salt Chlorination

- Pool water has a silky, luxurious feel for the optimum swimming experience
- Consistent generation of chlorine disinfectant helps prevent chlorine spikes or algae episodes
- Minimized maintenance with many automated systems available
- Reduced chemical storage and handling
- Typical 3-5 year chlorinator lifetimes means fewer trips to the pool store since the disinfectant is made on-site
- Naturally recycling process uses simple salt to generate the disinfectant

Recommended Operating Conditions

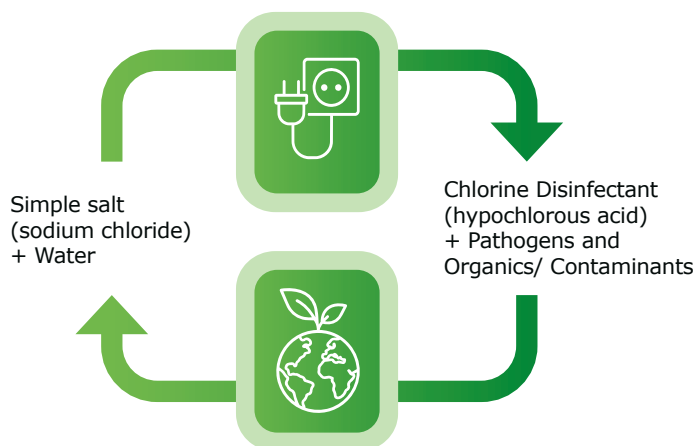
- Salt (sodium chloride) range of 2-6 g/L
- Water temperature: 15-40°C
- Follow national standards for pool chemistry including disinfectant levels and saturation index parameters
- Stabilizer levels of 30-50 ppm for outdoor facilities

DSA® DN240 Electrode Advantages

- Most validated and reliable electrochemical technology for pool water disinfection
- De Nora has the longest experience in electrode catalyst coating development
- Significant resources committed to continuous product improvement
- Unique self-cleaning product designed specifically for pool use
- NSF/ANSI 50 component listing for DN240

Technical Information

- When the salt chlorinator is energized, the electrodes catalyze reactions with the sodium chloride and water molecules at the anode and cathode surfaces to generate the chlorine disinfectant
- Chlorine is in the form of hypochlorous acid and sodium hypochlorite in the pool water, and the ratio of the two is pH dependent
- When the chlorine disinfectant kills or inactivates pathogens and oxidizes organics/contaminants, the chlorine returns to the native state as salt (NaCl) in water as a recycling process



Overall Chemistry Reaction

$\text{NaCl} + \text{H}_2\text{O} + \text{electricity} \rightarrow \text{NaOCl}$
(disinfectant)

Primary Anode Reaction:
 $2 \text{Cl}^- - 2 \text{e}^- \rightarrow \text{Cl}_2$

Primary Cathode Reaction:
 $2\text{H}_2\text{O} + 2 \text{e}^- \rightarrow \text{H}_2 + 2 \text{OH}^-$

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