



Municipal Water and Wastewater Treatment Solutions

DE NORA

**Assure Compliance with Reliable and Proven
Solutions for Water and Wastewater Treatment**



Ensure your
Environmental
Compliance

Reduce your OPEX cost

Reduce your CAPEX cost



We Are De Nora

De Nora works in partnership with its customers with safe, innovative and reliable energy saving technologies on a worldwide basis at thousands of installations across a range of technologies and applications.

Our Solutions

- **Capital Controls®**
 - Chlorine Dioxide
 - Emergency Scrubbers
 - Gas Feed Disinfection
 - Ozone Generators
 - Ultraviolet Disinfection
- **ClorTec® & MIOX®**
 - On-site Sodium Hypochlorite Generators
 - Mixed Oxidant Generators
- **CECHLO®**
 - On-site Chlorine Generators
- **DE NORA TETRA®**
 - Drinking Water Filter Underdrains
 - Wastewater Filtration
- **DE NORA VIA™**
 - Aftersales Support Solutions
- **SORB**
 - Inorganic Contaminant Removal

Treatment Applications

De Nora can support your needs for the following municipal applications:

- **Ammonia**
- **Arsenic**
- **Biofilm**
- **BOD and COD reduction**
- **Chlorate**
- **Contaminants of Emerging Concern**
 - PFAS, 1,4-Dioxane, micropollutants, NDMA
- **Disinfection / Advanced Oxidation**
- **Disinfection Byproducts (DBPs)**
- **Fluoride**
- **Hardness**
- **Hydrogen Sulfide**
- **Iron and Manganese**
- **Nitrate**
- **Particulate Removal (Filtration)**
- **Sulfate**
- **Taste and Odor**

De Nora Makes Water Treatment Easy

Unparalleled experience and water treatment expertise

- Experience includes nearly 100 years electrochemistry, 60 years disinfection, and 55 years filtration solutions
- Employee expertise of hundreds of years
- Tens of thousands of installations globally

Comprehensive range of solutions

- Covering many technologies including all readily available disinfection solutions

Innovation capability

- Around >3% revenue reinvestment in R&D through three research laboratories, plus centers of excellence
- >250 patent families covering more than 2000 individual applications

Global service and aftersales provide peace-of-mind

- Reliable, trusted and effective solutions
- Thousands of long standing installations with minimal maintenance requirements

Global reach

- 25 offices worldwide and a range of supporting partners

Why choose De Nora?



Proven Technologies



Environmental Compliance



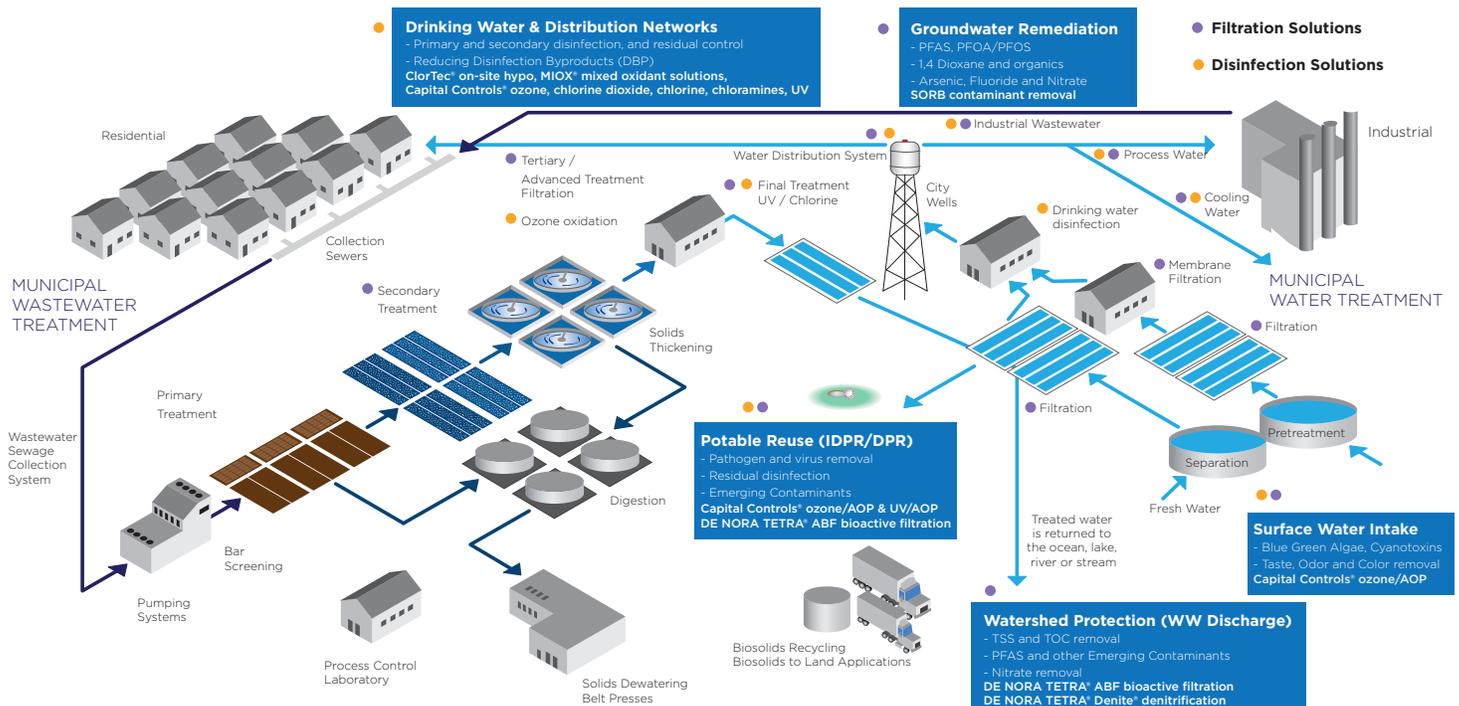
Unparalleled Experience



Reduced OPEX and CAPEX Costs



Peace of Mind with Our Aftersales Experts



De Nora Filtration Solutions



The DE NORA Filtration Advantage

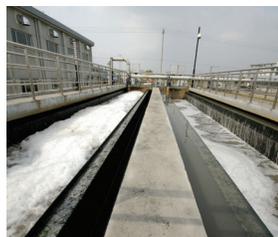
- **Experience**
 - >50 years & >1,300 installations
- **Reliability & Longevity**
 - Performance history backed by warranties
 - Filters operating with original equipment after 30 years
- **Ease of Operation and Maintenance**
 - Robust design and no moving parts
- **Low Lifecycle Costs**
 - Low backwash water generation and long media life reduces lifecycle costs by up to 50%
- **Adaptability**
 - Easily upgraded to meet future regulations

DE NORA TETRA filters are a market leader for deep bed filtration, treating more than 20 million m³/day. Over 70% of the water treated for denitrification in the Chesapeake Bay area employs Denite® filters.

SORB Systems pioneered the removal of arsenic from municipal drinking water. Over 175 systems have been installed since 2002.

Wastewater Solutions

DE NORA
TETRA SNAP-T®
Wastewater Filter
Underdrains



**DE NORA TETRA
DeepBed Denite®**

Denitrification



**DE NORA TETRA
CoOX**

Columnar Oxidation
Solids, BOD, Nitrification



**DE NORA TETRA
DeepBed Media
Filter**

Solids Removal



DE NORA TETRA SAF

Submerged Aerated Filter
BOD Removal,
Nitrification

Water and Wastewater Challenges Addressed by DE NORA TETRA & SORB

Tertiary and Biological Wastewater Treatment

TSS, BOD, Ammonia, Nitrate

Drinking Water Treatment

Filter Underdrains

Contaminants of Emerging Concern

PFAS, 1,4-Dioxane, NDMA, Micropollutants



Drinking Water Solutions



DE NORA TETRA Anchor-Rite

Drinking Water Filter Underdrains



SORB

Inorganic Removal Media and Systems

(Arsenic, Fluoride, Iron/Manganese, Nitrate, PFAS)

De Nora Disinfection Solutions



The DE NORA Disinfection Advantage

- **Experience**
 - >60 years of gas chlorination and more than 50 years of ozone experience globally
 - Wide ranging applications including municipal water/wastewater and industrial
- **Easy Maintenance and Operation**
 - Proprietary dielectric reduces maintenance costs and increases uptime
- **Robust Design**
 - Long lifecycle life

Capital Controls is a disinfection pioneer including invention of all vacuum gas feed technology

Capital Controls scrubbers are the only supplier with both wet and dry emergency systems

De Nora has experience across all major ozone applications

De Nora Solutions



Capital Controls

Gas Feed
Chlorination



Capital Controls

Analyzers



Capital Controls

Emergency
Scrubbers



Applications supported by Capital Controls disinfection technologies

Drinking Water Treatment

Taste and Odor, Color, Disinfection, Fe/Mn H₂S, 1,4 Dioxane, THM reduction, TOC reduction

Wastewater Treatment

Disinfection, Biosolids, Odor Control, Color, Reduction of COD and specific pollutant reduction (surfactants, hydrocarbons, phenols...), Toxicity reduction

Water Reuse (Direct/Indirect Potable)

Micropollutant reduction



Capital Controls

Chlorine Dioxide Generators



Capital Controls

Ultraviolet Disinfection Featuring SENTINEL®, Rayox® and C3 Series Reactors



Capital Controls

Ozone Generators



De Nora On-site Generation Solutions



The DE NORA Electrochemical Advantage

- **Experience**
 - >6000 electrochlorination installations globally and nearly 100 years expertise
- **Efficiency**
 - Optimized process for the lowest salt and power usage, saving 15% in OPEX cost
- **Flexible**
 - Small footprint
 - Easy to install and operate with self cleaning electrodes

More than 6000 electrochlorination systems including marine, offshore, power and desalination applications.

Multiple solutions to generate mixed oxidant, hypochlorite and chlorine on-site using proven technologies.

On-site Hypochlorite Solutions



ClorTec SD
To 2lb/d
= 0.9kg/d



ClorTec 25-100
25-100 lb/d
= 11.3-45 kg/d



ClorTec 100-500
100-500 lb/d
= 45-227 kg/d



ClorTec 100-2000
100-2000 lb/d
= 45-909 kg/d



ClorTec 500-2000
300-1200 lb/d
= 227-909 kg/d



Three Applications for ClorTec® and MIOX® generators

Drinking Water / Wastewater Disinfection

MIOX Generators for Commercial & Institutional Applications

MIOX generators for microbial / biofilm control, and *Legionella* controls Mineral Scale Control

Surface Disinfection

ClorTec-SD generators produce broad-spectrum sanitizer and disinfectant that kills 99.9% of germs when used as directed*. EPA Registration Number: 91386-1**. Always read and follow label directions.

Mixed Oxidant Solution Generators (MOS)



MIOX 2
To 2lb/d
= 0.9kg/d



MIOX 4-8
4-8lb/d
= 1.8-3.6kg/d



MIOX 15-60
15-60lb/d
= 6.8-27kg/d



MIOX 60-300
60-300lb/d
= 27-136kg/d



MIOX 300-1200
300-1200 lb/d
= 136-545 kg/d

Convenience. Support. Expertise.

DE NORA VIA™ visual assistance is a solution that enables experts to provide remote service support to technicians and customers. Visual assistance improves the service experience and time to problem resolution by augmenting tasks with visual technology to improve efficiencies. Tasks that previously required on-site visits are converted to live video experiences.



Aftersales Solutions from De Nora

- On demand services, spare parts and accessories
- Commissioning and installation supervision
- Warranty support and extensions
- Equipment certification and recertification
- Service, maintenance, and operation agreements
- Service of competitive equipment
- Repair and loaner service
- Performance upgrades and retrofits (De Nora & competitive installed base)

* EPA Registration Number 91386-1 mandates specific salt to be used. Please consult De Nora for proper salt selection.

** EPA FIFRA Registration does not imply approval for use as a disinfectant or sanitizer for locations outside of the United States. Please check your local regulations regarding biocidal claims and allowable uses in your region.



About De Nora

Backed by 100 years of experience, you can be confident in the reliability and safety of De Nora solutions. We are the partner-of-choice for communities and companies around the globe. In fact, more than 500 million people around the world use water treated by De Nora products every single day.

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