The Lifeline for the Nitrogen Processing Industry
**NALCO WATER**
**ADDRESSING INDUSTRY WATER CHALLENGES.**

Innovative solutions to fit your water sustainability goals and minimize water risk
Meet water specifications for unit operations
Continue delivery of high-quality results

**WATER MANAGEMENT**
- Total Plant Assessment
- Scenario Planning
- Regular On-Site Technical Service & Support

**PRE-TREATMENT**
**TROUBLESHOOTING AT THE SOURCE.**

Prevent scale buildup and corrosion
Improve water clarity
Minimize downtime and chemical consumption
Increase potential to use alternative water sources

**RECOMMENDED PRODUCTS AND SERVICES**
- PARETO™ Mixing Technology
- Raw Water Biocontrol
- Ion Exchange and Membrane Services

**PROCESS**
**PROTECT YOUR MOST CRITICAL ASSETS.**

Reduce turnaround time
Reduce downtime
Predict and avoid downtime with proactive monitoring and control
Deliver consistent product quality

**RECOMMENDED PRODUCTS AND SERVICES**
- OMNI™ Total Heat Exchanger Performance Monitoring
- NITROSo1ve™ UAN Corrosion Inhibitors
- 3D TRASAR™ for UAN Quality
- Nitrogen Analyzer

Deliver more than just products
Repurpose water-energy sources to minimize energy costs and optimize performance
Enhance performance across your operation.

Keep your plant reliable and profitable with outcome-based solutions and products designed for every aspect of your operation. From pre-treatment to process to post-treatment, Nalco Water helps protect your business with quantified results.

**WHAT KEEPS YOU UP AT NIGHT?**

From extended turnaround times to maintenance costs, performance impacts all aspects of your business. Several factors can threaten your unit operations through your plant.

**WHAT’S IMPORTANT**

- Safety
- Reliability & Extended Turnaround
- Asset Protection & Optimization
- Total Cost of Operations & Profitability
- Regulatory & Environmental Compliance

**Water program customized to fit your needs**

- Complete on-site water quality tests
- Technical water analysis at Nalco Water labs as needed
- Full review of water impact on your business

**The right program for your business**

- Water quality specification met for each unit operation
- High-quality chemical products
- Regular maintenance program

**More than just products**

- Local on-site expertise
- Meeting evolving states of conditions
- Addressing future regulatory concerns

**Continued delivery of high-quality results**

- Over 100 years of deep industry knowledge
- Monitoring and control of critical systems
- Continued water analysis
HEAT EXCHANGE AND COOLING WATER
DELIVERING CONSISTENT PERFORMANCE IMPROVEMENT.

Predict challenges, prevent outages and prolong operations
Reduce energy consumption with clean cooling tower surfaces
Reduce water use within single unit operation
Meet operational temperature specification to meet product and discharge requirements
Enable water reuse for utility and process streams

RECOMMENDED PRODUCTS AND SERVICES
- 3D TRASAR Technology for Boilers
- Ion Exchange and Membrane Services
- 3D TRASAR Technology for Membranes
- Nalco Water Corrosion Scale Monitor (NCSM)
- PURATE™ Technology

STEAM
MAINTAIN RELIABILITY.

Keep boiler surfaces free of scale
Avoid unnecessary costly repairs and total asset replacement
Increase reliability and uptime
Reduce energy consumption
Reduce cleaning maintenance and service calls
Improve pre-boiler condensate corrosion control

RECOMMENDED PRODUCTS AND SERVICES
- 3D TRASAR Technology for Cooling Water
- High Performance Cooling Water Polymers
- OMNI Total Heat Exchanger Performance
- Water Safety Solutions
- PURATE™ Technology

POST-TREATMENT
IMPROVE RESULTS.

Meet regulatory discharge compliance
Reduce maintenance costs
Enable water recycle capability
Minimize scale

RECOMMENDED PRODUCTS AND SERVICES
- Microbiological Testing
- PURATE Technology
- Nalco Water Flocculant Technologies
- FLOCMASTER™ Dewatering Technology
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Productivity</td>
<td>Help maintain <strong>98% uptime</strong> and assure extended turnaround times</td>
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<tr>
<td>Costs</td>
<td>Reduce overall total cost of operation up to <strong>20%</strong></td>
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<td>Assets</td>
<td>Partner in <strong>5</strong> Greenfield projects to help protect assets worth over <strong>$5B</strong></td>
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<td>Energy</td>
<td>Help provide steam availability and optimize energy use in <strong>40%</strong> of plants</td>
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<td>Product Quality</td>
<td>Troubleshoot challenges in asset protection and product quality in more than <strong>50%</strong> of UAN producing plants</td>
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<td>Safety</td>
<td>Help eliminate safety incidents with reliable and efficient chemical delivery systems, safety audits and operator safety training</td>
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<td>Water</td>
<td>Treat more than <strong>78 billion</strong> gallons of water to an optimized quality and quantity necessary to meet production needs and community expectations</td>
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*North America Market
The standard of innovation

Nalco Water’s unmatched service is paired with innovative products designed to deliver exceptional plant performance. As part of our holistic approach, expert service specialists will help you choose the solution best suited to protect your assets, extend turnaround time and reduce variability with your systems.

**PURATE™ CHLORINE DIOXIDE SYSTEM**

**INNOVATIVE CHEMISTRY**
unique stabilized solution of sodium chlorate and hydrogen peroxide

**UNIQUE DESIGN**
high efficiency generator is a two-chemical feed system that can be easily piped at application point

**COST EFFECTIVE**
effective treatment program in wide range of pH and various constituents in system

**ENGINEERED FOR RELIABLE AND EFFICIENT OPERATION**
>95% generation efficiency with design safety interlocks

**REDUCED CORROSION POTENTIAL**
Does not contribute potentially corrosive chlorides like traditional halogen treatments

**OMNI TOTAL HEAT EXCHANGER PERFORMANCE MONITORING**

**ADVANCED MONITORING AND PREDICTABILITY FOR RELIABILITY AND PROFITABILITY**
A first-of-its-kind program guaranteed to maximize operational efficiency and improve your business outcomes – sustainably

**PREDICT**
Performance is predicted by using cloud analytics in partnership with Microsoft

**PREVENT**
Generate performance insights that allow our customers to prevent unscheduled downtime and informed decisions

**PROLONG**
Extend asset life and runtime by enhancing the ability to take action with data insights