



HYDREX[®]

Chemical Solutions

*Providing chemistry, equipment and service
for sustainable water cycle performance*

Understanding the challenges facing industrial and municipal facilities

As an industrial or commercial company or as a municipality you face more and more challenges with water treatment.

Increasingly complex pollution and ever stringent regulations require that you implement advanced treatment when you already have to balance production continuity, operational efficiency, safety and environmental constraints.

To support your sustainable performance, Veolia Water Technologies offers a unique portfolio of treatment systems, standard products and services for each stage of your plant's water cycle.

In many cases, without adapted chemical water conditioning, your treatment assets are exposed to risks - corrosion, scaling or bacteriological development - that will impact their operation and ultimately the total costs.

To prevent these risks and meet your uppermost requirements, Veolia Water Technologies technical and chemical service engineers, trained in water treatment processes, equipment and chemistry have designed complete water treatment chemicals programs: Hydrex® Chemical Solutions.



MINIMIZE
TOTAL OPERATING
COSTS



OPTIMIZE
PERFORMANCE &
PRODUCTIVITY



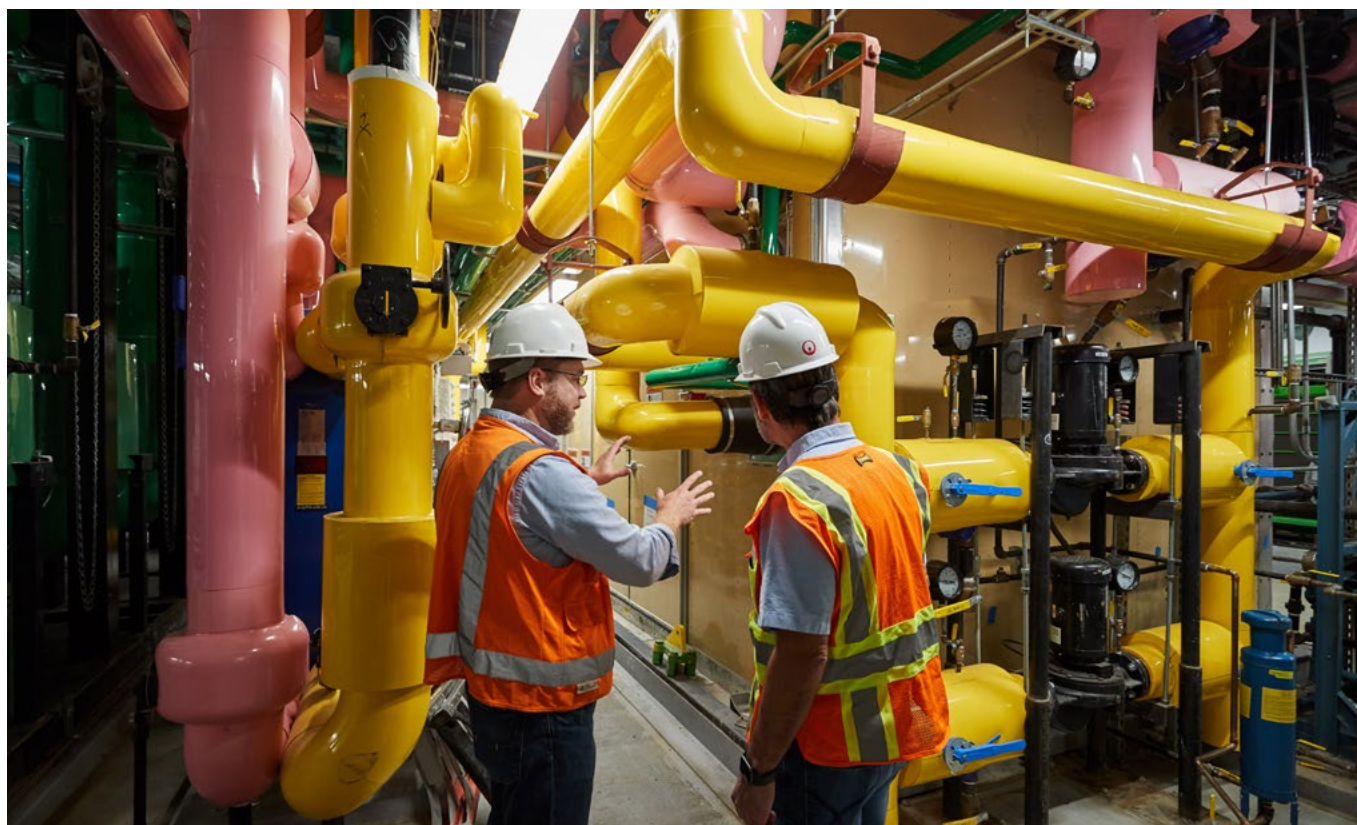
MAXIMIZE
PRODUCTION
UPTIME



REDUCE
ENVIRONMENTAL
FOOTPRINT



GUARANTEE
COMPLIANCE



Combining HYDREX[®] proprietary range of high performance formulations with equipment and expert service, HYDREX Chemical Solutions help maximize productive uptime of your water assets while minimizing risk for plant operators, environmental impact and total operating costs.

Hydrex comprehensive chemical conditioning programs are dedicated to all the water applications critical for the production processes:

- Hot water and steam boilers
- Open and closed cooling circuits
- Desalination on membranes
- Wastewater treatment and reuse
- Sludge dewatering
- Drinking water and process water production

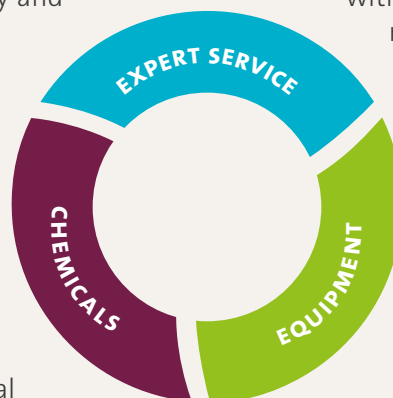


A complete water treatment offer to support your productivity

Nine ranges of HYDREX specialty chemicals available worldwide and specially formulated to ensure product quality, stability and optimal performance.

A certified water treatment chemical supply chain thanks to the Hydrex global network of blending facilities and partners.

A priority on risk and compliance ensuring Hydrex solutions meet all health, safety and environmental regulations now and in the event of a regulatory change.



A unique service

with a single contact point providing customers with onsite support, expertise and commitment to long term performance.

A portfolio of complementary equipment

allowing for the optimal implementation and use of our chemical solutions.

A focus on sustainable approaches

Formulation of products non hazardous or less harmful to the environment. Development of technologies to limit the handling of chemicals and to minimize the water, chemicals and energy consumption.

HYDREX®, application-proven formulations to suit all your water treatment needs

The Veolia Water Technologies proprietary nine series of Hydrex specialty chemicals are based on years of calculation and testing by our technical research and development center to boost each water treatment step performance. Our experienced staff of chemists and engineers can design a process to fit your individual plant's needs in the most cost-effective way.

To help you comply with all the existing regulations and to stay compliant with the upcoming ones, we focus on minimizing the impact of our Hydrex chemicals on the environment. It results in enriching our range of products with green chemistry and more ecological new formulations - such as plant-based polymers and phosphate or zinc free products.

BOILER WATER TREATMENT

Hydrex® 1000 Series is specially formulated to prevent damage inside all types of boilers as well as to maximize condensate return and performance.

Example: Scale inhibitors; corrosion inhibitors, antifoams, oxygen scavengers, dispersants, green products.

COOLING WATER TREATMENT

Hydrex® 2000 Series improves the efficiency and reliability of open, closed and once-through cooling water systems.

Example: Mineral scale inhibitors including phosphorus and non-phosphorus based products, polymeric and bio dispersants, specialty metal corrosion inhibitors.

POTABLE WATER TREATMENT

Hydrex® 3000 Series is formulated to meet the ever stricter quality standards of drinking water production applications.

Example: Coagulants, flocculants, antiscalant, mineral scale and corrosion inhibitors, specialty cleaners, plant-based products, activated selective carbons and specific use resins (e.g. for PFAS removal).

MEMBRANE TREATMENT

Hydrex® 4000 Series is a range specially developed for optimum protection and operation of reverse osmosis and membrane filtration applications.

Example: Antiscalants, biocontrol and membrane offline storage additives, cleaners, chlorine/oxidizer scavengers.

MAINTENANCE AND CLEANING

Hydrex® 5000 Series aims to remove any deposits found in a water system and ensure the sustainable protection of cleaned surfaces.

Example: Steel surface descaling, acidic, alkaline, biosourced cleaners, resin cleaning products, scale removers, degreasing agents, passivators, antifoams, surfactants.

WASTEWATER TREATMENT

Hydrex® 6000 Series is designed to treat a wide variety of pollutants in clarification and wastewater treatment applications.

Example: Organic/inorganic coagulants, anionic, cationic, solid and liquid form flocculants, antifoaming agents, odor control, metal removal, micronutrients, green chemistry, sludge dewatering.

BIOCIDAL WATER TREATMENT

Hydrex® 7000 Series is formulated to protect water assets from microbiological contamination, while complying with the most stringent environmental norms.

Example: Oxidizing and non oxidizing products, rapid or delayed action, broad spectrum efficiency or targeted on specific contaminant (eg. legionella control).

INDUSTRIAL PROCESS TREATMENT

Hydrex® 8000 Series is specially formulated to be applied in the industrial processes in food and beverage and oil and gas sectors in particular.

Example: Emulsion breakers, cleaners, degreasers.

SPECIFIC CONDITIONING APPLICATIONS

Hydrex® 9000 Series is developed to meet the requirements of key industrial processes.

Example: Formulations for thermal desalination, dust control or parameters adjustment, nutrients, enzymes/microorganisms cocktails.

A range of equipment to get the best out of our chemical solutions

Hydrex Chemical Solutions encompass more than just the supply of water treatment additives. To ensure that the selected products are stored, implemented, regulated, monitored and adjusted in an optimal way throughout the process, our programs include a wide range of equipment.



FOR PROGRAM DESIGN

Thanks to Hydrex in-house simulation software and calculators, we can define for you the most suitable selection of chemicals and the mandatory critical parameters values for which the treatment program delivers the technical and economical targets.

FOR CHEMICAL IMPLEMENTATION AND USE

Our range includes storage tanks, injection/dosing devices, metering pumps and water meters to enable the optimal use of our products.

FOR DETECTION AND REGULATION

For each treatment, measuring performance is key in order to optimize chemical consumptions and prevent any damage and efficiency loss.

Hydrex solutions include specific sensors able to detect biofilm growth at an early stage, scaling and corrosion.

Easy to install, these sensors are part of the Hydrex strategy of KPI monitoring with data acquisition (HYDREX® controller) combined with digital supervision service (Hubgrade™).

FOR CONTINUOUS SYSTEM PROTECTION: HYDREX CONTROLLERS

These smart devices allow for real-time performance monitoring and control of any water-use system

- collect data on critical operating parameters from your system.
- calculate the out of compliance/spec conditions. Proactively execute the corrective actions in both water conditions and chemical feed.
- allow for a balanced water use which results in optimal chemical dosages, assets protection, hence, savings on total cost of operation.



When combined with Hubgrade digital service (formerly known as AQUAVISTA™), HYDREX® controller remotely connects

with the customers and give you access to information and to a range of features dedicated to enhance the chemical treatment performance control further (for cooling system and boilers).

Hubgrade
Powered by **VEOLIA**

A UNIQUE ACCESS TO VEOLIA WATER TECHNOLOGIES' PORTFOLIO

Hydrex experts can recommend the relevant complementary equipment to optimise your chemical program and your water treatment performance, always targeting water, energy, and maintenance cost savings. With Hydrex you have a direct access to Veolia Water Technologies' portfolio which includes pretreatment filtration, reverse osmosis, softeners, ion exchange, etc.

Expertise and extended services programs

Veolia Water Technologies' ambition to provide you with high quality technical-based and result-driven service is at the core of Hydrex Chemical Solutions. Throughout the world you will have a local contact, supported by a global network of experts, who will use our more than 100 years of know-how in chemistry and water conditioning to meet all your requirements.

ON SITE SERVICE AND SUPPORT

An expert engineer - or team- is assigned to work with you on site, providing problem resolution, and supporting your decisions:

- Surveys, diagnostic audits
- Multi-control and consulting
- Operation guarantee contracts, service reports, emergency forms
- Business review, analytical programs, actions plans



ANALYSIS AND TESTING

Hydrex service relies on a full capacity of routine or tailored analysis, specialized sampling and testing ISO certified and compliant with the national and international standards.

We also provide lab solutions such as:

- Flow and load surveys and benchmarking
- Microscopy and health checks
- Membrane autopsy
- Pilots



LEGIONELLA CONTROL SERVICE

In the context of a cooling treatment, Hydrex service enables you to prevent legionellosis while keeping your facility processes operational, safe and compliant with the regulations.

We provide:

- Risk analysis for Legionella bacteria
- Accredited sampling and recommendations
- Independently tested biocidal technologies
- Digital monitoring and control systems
- Tailored training programs



COMMITMENT TO RISK AND COMPLIANCE

We guarantee optimum health and safety conditions and full regulatory compliance of our processes and products from innovation step to disposal.

We manage all the required documentation for you: safety data sheets, compliance statements, etc.

HUBGRADE DIGITAL SERVICE

Associated with Hydrex Chemical Solutions, Hubgrade allows users to optimize their chemical treatment results and protect their assets through enhanced control.

Hubgrade includes three modular offers the features of which can be packaged flexibly to deliver value to your operation.

- Mitigation of the risks for compliance
- Maximisation of ROI and OPEX savings
- Customized support interfaces allowing each team member to stay focused on their key activities
- Management and decision making tools thanks to specific KPI dashboard which are customizable

A constant focus on sustainable solutions

In line with the Veolia Group's ongoing commitment to sustainable development and ecological transformation, Veolia Water Technologies pays particular attention to the impact of the treatment technologies as well as to your environmental footprint.

To help you minimize your environmental footprint and, comply with the ever stricter regulations on the use of harmful substances in water treatment, we constantly enrich the Hydrex solutions portfolio with green formulations and alternative technologies.



ENVIRONMENTALLY FRIENDLY

- **Vegetable based polymers** - Hydrex green coagulants and flocculants using natural based raw materials derived from renewable resources. Non-toxic and biodegradable, they are the easy, green and cost saving choice if you have to replace your inorganic chemicals
- Zinc or Phosphate free products
- Products designed to improve recycling efficiency

NON CHEMICAL TREATMENT

- Reverse osmosis systems for purge reduction
- Systems of condensate polishing prior to recycling and reuse
- Recovery systems for brackish and used water



ECOLOGICAL TECHNOLOGIES

OSG Hydrex - Based on salt electrolysis this on site generator is a green alternative to the use of synthetic biocides for the disinfection of cooling tower water.

- Zero chemicals
- Elimination of transport and handling of dangerous products.
- Reduction of halogenated substances in discharges
- Secured Legionella risk, and guaranteed production continuity
- Optimized treatment costs



GREENER STRATEGIES

- **Global Water Audits "Screen"** - A 360-degree methodology to assess all the aspects of your water cycles, identify solutions to minimize water/energy/chemicals consumption (and the cost associated with them)
- Implementation of more concentrated products (solid or liquid) for same efficiency with reduced transportation costs and carbon footprint
- Minimization of waste and discharge via reuse and recycling
- Digital supervision Hubgrade to allow for further energy/water/chemicals consumption optimization and control

Resourcing the world

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