

HIGHEST EFFICIENCY NITRATE REMOVAL FOR POTABLE WATER

NITRASEP® and Advanced NITRASEP®
technologies to drive down your OPEX costs

Market leading water and salt usage efficiency

Fully automated with remote on-line diagnostics

Compact footprint, fully skid mounted for plug
and play site installation

Modular containerised option

Exceeds International drinking water
standards (DWI, WHO, EPA, EC.)

Extensive reference list and proven
performance and reliability



Want to reduce
your waste water
and chemical
consumptions?

NITRASEP® & Advanced NITRASEP® Technologies

OVIVO NITRASEP® SYSTEMS ENGINEERED TO THE HIGHEST STANDARDS

WHY OVIVO TECHNOLOGY?

The drive to remove nitrate from ground water sources to the levels required to meet International potable water standards is becoming an important stage in the production of acceptable drinking water. The Ovivo NITRASEP® system offers a safe, reliable and flexible solution with minimised operational cost to achieve these needs.

Ion exchange is a well-established technology using nitrate selective anion resin which offers excellent nitrate removal performance and low waste water discharge.

Ovivo has pioneered the NITRASEP® family of leading edge products for nitrate removal from ground water with several key advances to reduce Total Expenditure and life cycle costs.

Advantages of the Ovivo NITRASEP® packed bed ion exchange product range over conventional Nitrate removal ion exchange processes can be summarised as follows:

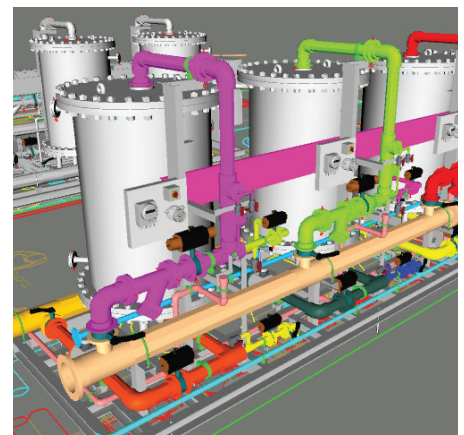
- Optimised footprints, reducing civil works to the minimum
- Engineered to meet your specific needs
- Interactive 3D model for operator training
- Reduced effluent with lower disposal costs and tanker traffic
- Reduced maintenance – no complex bespoke moving parts
- Quick install as fully prefabricated
- Reduced regenerant consumption
- Robust components
- Extensive references list and proven reliability
- Extended warranties
- Complies with DWI / WRAS / FDA



800 m³/h (3500 gpm) NITRASEP® Plant



316 m³/h (1400 gpm) Advanced NITRASEP® Plant



- 1 Typical ground water nitrate level to be treated : 50-100 mg/l NO₃
- 2 NITRASEP® treated outlet water nitrate level : 0.5-2 mg/l NO₃
- 3 NITRASEP® blended outlet water nitrate level : 40-45 mg/l NO₃



The Ovivo NITRASEP® family of products can be broadly split into NITRASEP® and Advanced NITRASEP® technologies with the following relative advantages and customer benefits:

	NITRASEP®	Advanced NITRASEP®
Vessel type	Dished vessels	Flat end vessels
Distribution system	Top and bottom nozzle plates	Top and bottom fractal distributors
Operating pressure¹	< 10 barg (145 psi g)	< 10 barg (145 psi g)
Waste water%	Good (0.6%)	Excellent (0.2%)
Throughput Capacity²	Unlimited treated flow	< 400 m³/h (1750 gpm) treated flow
Installation	Modular skidded or containerised	Modular skidded or containerised

¹ Higher operating pressures possible with adapted design

² Typical nominal flowrates. Actual site capacity will depend on treated/raw blend ratio and raw water nitrate level but may typically be 2-3 times higher than the above figures.

OVIVO NITRASEP® ADVANTAGES

NITRASEP® Ion exchange units offer many advantages over conventional reverse flow regenerated ion exchange units. These are packed bed units that allow the use of deep beds, in compact columns, leading to efficient utilisation of the resin capacity.

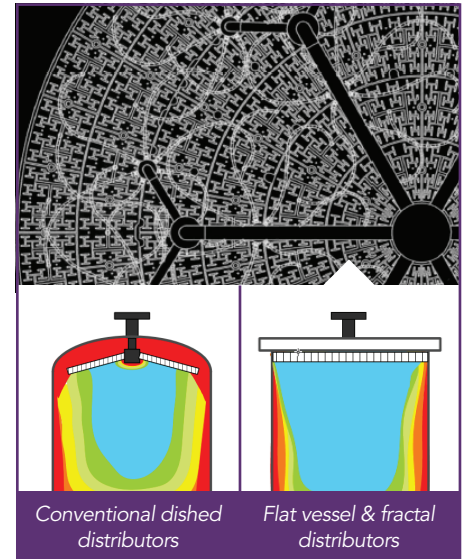
The NITRASEP® technology operates in up-flow service, down-flow regeneration mode. This ensures that the compacted resin nearest to the treated water outlet is the most highly regenerated and produces the best quality treated water.

NITRASEP® Ion exchange vessels have conventional dished ends and internal distribution and collection to offer the lowest CAPEX solution.

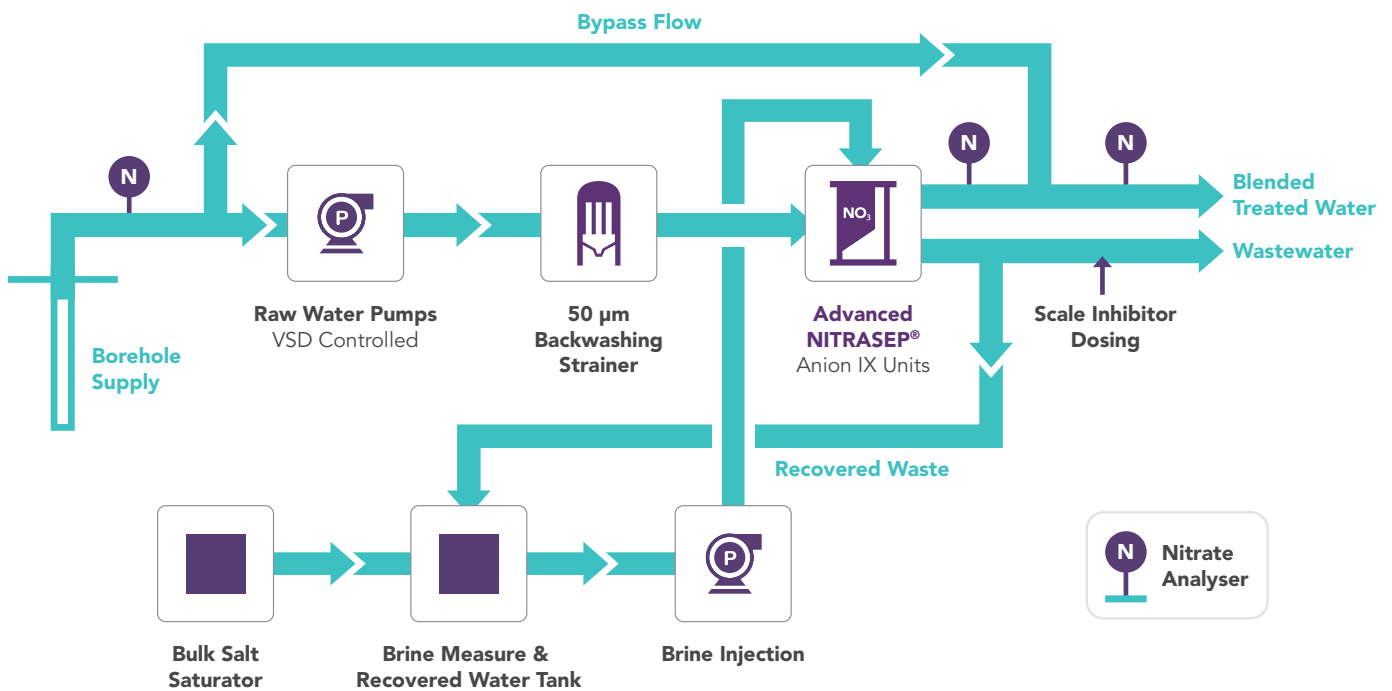
Advanced NITRASEP® Ion exchange vessels have compact flat ends and ultra-efficient fractal plate distribution and collection and offer the lowest OPEX solution. Fractal distributors offer perfect plug flow characteristics to minimise mixing during brine rinse-out and reduce waste water volumes

The Ovivo NITRASEP® system will automatically optimise the treated/bypassed water blend ratio to cater for wide range of feedwater nitrate levels and operate at maximum efficiency for the entire lifetime.

The Ovivo NITRASEP® Convenient HMI with adjustable regeneration and target treated nitrate level allows owner to optimise for minimising salt consumption or water use, based on the relative costs.



TYPICAL FLOW DIAGRAM



OPERATING PHILOSOPHY

Feed water is pumped using variable speed controlled raw water pumps to allow the optimum flow to be treated with the remaining raw water being bypassed. The final blended water nitrate level is measured to confirm treated flow is within range. Feed nitrate level and works inlet flow are measured and a ratio algorithm used within the local PLC to control raw water pump speed. Treated and blended nitrate levels are continuously measured online. Brine is usually made up from a bulk salt saturator and injected into the offline vessel for regeneration. Waste water is minimised by recycling rinse water and by reusing for rinse and salt dilution.

APPLICATIONS

- Municipal drinking water
- Private drinking water
- Construction camps
- Borehole well supplies
- Industrial applications
- Customised bespoke applications

Ovivo can help you with your Nitrate removal needs:

- Feed studies
- Process optimisation
- Full design build contracts
- Water analysis and existing plant audits
- Feasibility assessments
- Lowest Life cycle analysis
- Refurbishments
- Upgrades



Expert Water Treatment Plant Service



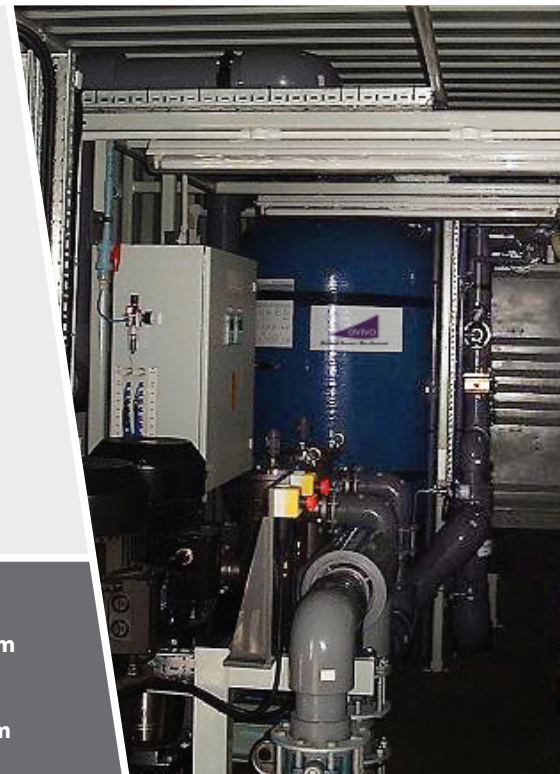
Troubleshooting assistance from our worldwide team of expert engineers

Evaluate potential of OPEX reductions and increases in system resilience

Prevent unforeseen problems and breakdowns through plant health checks

Ensure optimal performance through regular maintenance programs

Full refurbishments and overhauls of previously neglected equipment to improve asset life



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