RESIDENTIAL TREATMENT SYSTEMS

NITRATE REMOVAL SYSTEMS

SWT's Nitrate Filter Systems are built utilizing SWT's ProSelect™ Nitrate Resin as the primary functioning layer. Now, there is a way to treat nitrate contaminated well water easily and safely. These new systems are controlled by a computerized chip that is programmed with the levels of nitrates and monitors the actual water usage patterns. It economically regenerates the unit only as needed and ensures the customer nitrate-free water at all times for the entire home. The computer adapts to a home water usage pattern and leaves a buffer to ensure there will be plenty of treated water available. All this at an economical price! Plus, these systems now feature SWT's revolutionary ***Cyclonic Distributor System***™ to provide full bed contact, less channeling, and superior backwashing.

- **Removes up to 50 ppm nitrate per gallon of water**
- Regenerates with chloride (salt)
- **Nitrates will not release back into the water** (even if the filter bed is full)
- **A fraction of the cost of digging a new well or linking up to city water main**
- **100% corrosion-free system** features NSF® listed wound fiberglass tank with reinforced polypropylene lining (150 psi operating pressure)
- **Fully programmable, energy efficient controller** uses less than $5.00 of electricity per year
- 10 year warranty on tank, 5 year warranty on valve

Computer Metered Nitrate Removal Systems

Part Number	Tank Size Inches	Nitrate Capacity with 10 lb salt/cu.ft. (PPM as NO_3)	Service Standard Flow Rate GPM	Service Peak Flow Rate GPM	Backwash 50% Exp. @ 50°F GPM	Standard Pipe Connection Inches
NO376P2-050	7 x 44	33,500 *	3	6	1.20	1
NO376P2-075	8 x 44	50,250 *	4	8	1.40	1
NO376P2-100	9 x 48	67,000 *	5	10	1.70	1
NO376P2-150	10 x 54	100,500 *	7.5	15	2.20	1
NO376P2-200	12 x 52	134,000 *	8 to10	20	2.50	1

* Conservative number with 4x safety factor built in. While higher capacities are attainable, Safe Water Technologies recommends these guidelines due to unforseen variables that are common in well water. SWT also recommends periodic resin cleaning with soda ash and/or resin cleaners to keep the bed as clean as possible.

International voltages available at additional cost. Duplex systems also available. Contact your SWT representative for details.

Bypass available — add $59.70 to list price (P/N: UA/BV1256).

Operating Pressure: 20 to 125 psi (1.4 to 8.6 bar) **Operating Temperature:** 36 to 120°F (2 to 48.9°C)

NOTE: Please specify nitrate and sulfate levels in order for SWT to properly program capacity.

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System capacity is rated for total nitrate capacity only. Allotment of up to 50% of total nitrate capacity may be consumed by other ions in the raw water. Before installing a nitrate system, ***SWT recommends a water analysis and factory consultation for proper equipment sizing and regeneration settings.***

More on nitrate removal

The science of nitrate removal is simple, but for obvious reasons, cannot be taken lightly. The two most often used technologies for nitrate reduction are Reverse Osmosis (RO) and Ion Exchange. Ion Exchange is a more recent technology. RO is much more costly per gallon of treated water, except for third faucet drinking water applications. RO is a more full-proof method with less maintenance responsibility to the homeowner, but impractical in whole house applications.

Up until recently, nitrate was an ion that once pulled from the water with a resin bed, had a very loose hold on the resin bead, and a competitive ion, such as sulfate, could come along and push an already held nitrate ion back into the water. It has only been recently that this problem has been overcome.

ProSelect™ Nitrate resin is one of the first of its kind of resin that will not allow a competing ion to displace a captive nitrate ion back into the water supply. However, the selective advantage of the resin bead to the nitrate is still minimal. This means it almost acts as a first-come, first-served competition with a slight preference going to the nitrate. Other ions in the raw water will not displace the nitrate back into the water stream, but nitrates will not always displace sulfates either. That is why in all nitrate applications, a water analysis should be done to determine the amount of nitrate in the water—you also need to know if there are sulfates present which will compete for room in the resin bed. Then size the system accordingly.

It is very easy to do. It only requires a little math. If for example you have 30 ppm of nitrate, and 10 ppm of sulfate, that means you have a total of 40 ppm fighting for room in the bed. 25% is sulfate, and 75% is nitrate. That means that in a one cubic foot nitrate system with a capacity of 67,000 ppm/10 lb. of salt regenerant, the bed will be completely exhausted after 16,750 ppm of sulfate and 50,250 ppm of nitrate. So your total nitrate capacity would be 50,250 ppm nitrate (75% of 67,000 ppm) or 1,675 gallons of water. (50,250 ppm of room divided by 30 ppm/gallon of water equals 1,675 gallons before the bed is full.)

(Total bed capacity) – (% of sulfate to nitrate) = (Total nitrate capacity)

Still, some dealers like to reduce that number to err on the safe side. They may leave a 20% buffer to allow for an excess of water use.

Other things to remember:

- A nitrate system should always follow an iron filter or a water softener in any multi-tank treatment system.
- Iron will foul out a nitrate resin faster than a cation resin.
- Both a water softener and a nitrate removal system use salt (sodium chloride) to regenerate. However, the nitrate resin is using the chloride side of the salt for regeneration, as opposed to a water softener which uses the sodium side.
- Potassium chloride can be used, but remember, potassium chloride on average has 20% less chloride per lb. than salt. Control settings have to be adjusted accordingly.

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