

NIRO-50

TWO in **ONE** Systems

Contaminants: Nitrate/Hardness

In August 2019, **Watch Water**[®] was contacted by **European Union** to design, manufacture and start up a nitrate removal system and a softening system in a combined process.

The Watch® <u>NitroSoft</u> treatment system features a cabinet mounted **Nitrotrapp** media and units are sized for one family house, two family house and for a maximum design flow of 3 m3/h (13.2 gpm) for three family house. The models NitroSoft One, Two and Three uses NitroSoft media in a single fiber glass composite vessel. Each tank contains Watch® NitroTrapp and HardnessTrapp media in a ratio of **50:50**. Both medias are supplied in the chloride form as moist, tough as uniform spherical beads. The Watch® Nitrate ad Hardness removal system featured with a blends mixing valve that treated and untreated water to attain a blended nitrate concentration at set point less than 5 mg/liter. NitroSoft systems are equipped with a regeneration/brine well and brine valve system to regenerate the Watch NitroSoft systems.

WHOLE HOUSE SYSTEM

once every three days to maximize the efficiency for removal of nitrates and hardness. Regeneration of the **<u>NitroSoft</u>** systems is automated by the *Programmable LOGIC Controller*.

WO in ONE



NITRATE

REMOVAL

In addition to **Watch Water**'s combined Nitrate and Hardness removal system, **Watch**[®] can also provide a softening cabinet system using **Watch**'s <u>HardnessTrapp</u> softening media rated for maximum design flow of 3 m³/h. The cabinet models are <u>WatchSoft</u>; One, Two and Three. <u>See Brochure</u>.

'The Nitrate Removal Only"

<u>NitroTrapp</u> series built to remove high nitrates only. <u>See Brochure</u>.

Brochure: NitroTrapp



WHAT IS SOFTENING WITHOUT NILRO-SOFI

SOFTENING ALONE

The National list of allowed and prohibited substances identifies **Sodium-nitrate (NaNO₃)** as a prohibited substance.

How is Sodium Nitrate produced ?

Because softening resin is loaded with Sodium (Na⁺) all **Calcium nitrate**, **Magnesium nitrate** and **Iron nitrate** ions are exchanged as follows

 $Ca^{2+}No_{3}$ + $Mg^{2+}No_{3}$ + $Fe^{2+}No_{3}$ are exchanged into very toxic $Na^{+}NO_{3}$. Sodium nitrate water is considered as irritant to the respiratory tract which cause shortness of breath and coughing. **Water softening** alone when presented with **high nitrates** are result in water pollution and contamination of drinking water sources.

Sodium nitrates is common at all Point Of Entry (POE) water softener systems and serious source water contaminant, particularly in agriculture areas and is regulated under the Clean Water Act. Calcium and Magnesium is quickly ionized into Sodium (Na+) and Nitrates (No₃-) in softened In soft water, a high nitrate water. concentration could impose a low chronic level in aquatic system, and this is a huge concern. All softener systems must install Nitrotrapp systems. NitroTrapp



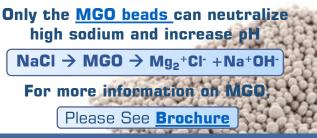
Without <u>Nitrotrapp</u> soft water can be toxic to humans. Nitrate contamination of **freshwater streams and rivers** is also a concern. The impacts of sodium nitrates on human health are potentially significant. Following consumption, the human body reduces nitrate to nitrite, which has been linked to



Methemoglobinemia, a potentially fatal condition whereby nitrates interfere with oxygen uptake within the body.

Sodium Nitrates can be further reduced to nitrosamines, a class of compounds considered to be **carcinogen**. **Nitrosamines** have been found to induce <u>**Cancer**</u> in variety of organs in more than for forty animal species, including higher primates.

Sodium Nitrates is a salt that dissociates into sodium (Na⁺) and Nitrate (No₃-) ions in drinking water. When Sodium nitrate dissolves in drinking water, they increase the sodium concentration of the body as well as the nitrate utilized by growing children. Sodium is relatively immobile in body and is likely to accumulate in body cells. Salinity stress is a major cause of hypertension, high blood pressure and diabetes. To avoid this stress of (Na+) it is very important to exchange **Sodium** against **Magnesium** and increase optimal pH of body by drinking high pH water between 8 and 9.5.







RED-OXY TREATMENT R А T Т O N RP Т RB 5 PRODUCTS INSTANT

TWO IN ONE NIRO-SOFT SYSTEMS

ONE Family house 2 – 6 person Household		
System	Point of Entry	
Flow Rate	SI: 1 m ³ /h US: 4.40 gpm	
Pipe Size	1 "	
Dimension (DxWxH	56 x 31 x 74 cm	
Nitrosoft Media Required	10 L	

TWO Family house 6 – 12 person Household		
System	Point of Entry	
Flow Rate	SI: 2 m ³ /h US: 8.80 gpm	
Pipe Size	1"	
Dimension (DxWxH)	56 x 31 x 120 cm	
Nitrosoft Media Required	20 L	

THREE Family house 12 – 18 person Household

System	Point of Entry
Flow Rate	SI: 3 m ³ /h US: 13.20 gpm
Pipe Size	1 "
Dimension (DxWxH)	56 x 31 x 120 cm
Nitrosoft Media Required	30 L





- **Easy** and **user-friendly operation**
- High-quality brand components
- Available in different sizes

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Suitable for small, medium-sized and large household

NITROSOFT KIT DETAILS

High-quality stable mounting block with integrated shut-off valve

- ✓ Water temperature max .: 90 °C
- Max. Operating temperature: 90 °C
- Material: brass
- Pressure level: PN10
- Nominal diameter: DN 25

Stainless-steel flexible hoses

Available in different unit sizes



HEALTH CONCERNS OF SODIUM NITRATE

How much Nitrates in WATER?

For those who own a **water Softener** must think about Nitrates in their softened water, You will wonder how much <u>Sodium Nitrate</u> is in **softened water**.

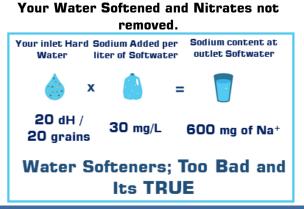


How much Sodium in SOFTENED WATER?

This will vary in each house hold. The amount of **sodium** in you water is directly related to your total **Calcium and Magnesium** ($Ca_2^+ + Mg_2^+$) in hard water.

Its so simple and easy math, lets figure it out together. For every degree (dH) of water hardness, or every grain of hardness there will be **30 mg** of **sodium in one liter of softened water**.

If you do not know Nitrates content in your water, contact your city administrator and they will be happy to provide you with this information and believe, its 100% false information. If you want the true results, you will have to test your water in a certified lab.



Health Concerns

Case studies have shown a link between level of Sodium nitrates and increased increased deaths from certain **diseases** including Alzheimer disease, diabetes mellitus, stomach cancer and parkinson's disease; possibly through the damaging effect of Nitrosamines on DNA. Nitrosamines, formed in soft water containing sodium and Nitrate including Nitrite, have been linked to gastric cancer and Esophageal cancer. Sodium nitrate and nitrite are associated with a higher risk of colorectal cancer. One of the reasons that hard water should be checked of its content of Nitrate from a certified lab.

A small amount of the nitrate added to water softener breaks down in Sodium nitrate. In addition, this water should not be used to cook food.

The **Sodium nitrate** than reacts with proteinrich-food to produce NOCs (nitroso compounds). NOCs can be formed either when food is cooked or in the body as food is digested

Watch Water[®] NIIRO-SOFI

A Mixed HARDNESSTRAPP and <u>NITROTRAPP</u> Media System for the simultaneous removal of N-Nitrosodimethylamine and Trihalomethanes from Dinking and Water for Food