

Sent: Tuesday, July 16, 2013 1:50 PM

Subject: FORUM Q & A UPDATE #4: NEW STUDY CONFIRMS LINK BETWEEN BIRTH DEFECTS AND NITRATE CONTAMINATION IN DRINKING WATER

Dear Aquathin Dealer OnLine, Splash NewsBulletin Members;

As the evolution of contaminate studies goes, the article below delivers a truly critical finding. Agrarian regions including beautiful wine countries, are rife with nitrates from over fertilization and runoff...as well as regions with industrial animal farms (cattle, pigs, chickens).

You will read in the entire release, **where mothers of babies with spina bifida were twice as likely to have consumed 5 milligrams or more of nitrate from their daily drinking water than women whose babies had no major defect.** NOTE: the nitrate Maximum Contaminate Level in the U.S. is 10 mg/l... and 50 mg/l in Europe and World Health Organization set limit.

Aquathin Heartland recently completed a municipal nitrate reduction system in Oklahoma serving a community of 10,000 people.

New study confirms link between birth defects and nitrate contamination in drinking water

Water Technology Magazine. July 16, 2013

SAN JOAQUIN VALLEY, Calif. — A new study linking nitrate contamination to birth defects hits hard in San Joaquin Valley where nitrate contamination threatens the city's drinking water for 250,000 people, according to the *Sacramento Bee*.

In 2012 research showed that nitrate pollution is extensive and expanding in the underground water of Fresno, Tulare and Kern counties, stated the article.

Some of the birth defects include spina bifida, cleft palate and missing limbs.

Repairs have been slowed down in many small towns because of bureaucratic and funding delays, noted the article.

"This contamination is so dangerous," said Maria Herrera of the Visalia-based Community Water Center. "Many towns need help with their drinking water, and we're still not seeing enough."

Read the entire press release [here](#).

Pasted below for your convenience are the earlier reports on nitrates and how to treat both Point of Use and Point of Entry.

I LOVE MY AQUATHIN ! AND REMEMBER, THE NEXT BEST THING TO OWNING AN AQUATHIN IS RECOMMENDING ONE TO A FRIEND !!

Let me know what you AquathinK !

Warmest regards to all...as well, your comments are always welcome and very much appreciated.

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Alfie

Alfred J. Lipshultz
President & CEO

P.S. "Splash NewsBulletins", "Forum Q & A" , Biz Bank, Tech Bank and Quote Bank... ARE ALL FREE services to all Authorized Aquathin Dealers and their clients to keep you abreast of technology updates and industry news.

From: AQUATHIN TECH SUPPORT [<mailto:techsupport@aquathin.com>]
Sent: Wednesday, October 21, 2009 6:22 PM
To: Info@Aquathin.Com (info@aquathin.com)
Subject: FORUM Q & A UPDATE: NITRATES -- WHY TWIN TANKS...THE MATH...& LIMITATIONS

Dear Aquathin Dealer OnLine;

OK, here comes more than you ever wanted to know about nitrate resin:

1. Aquathin uses the Synchronomatic setup vs. single tank used by most other companies. The unit looks like the Synchronomatic 45 and 60K size softener complete with Clip Cabinet. The reason Aquathin uses twin tank setup is that if a Customer uses water during regeneration of a single tank unit, concentrated nitrates can go downstream. Also, if a Customer fails to add salt to the brine tank allowing the nitrate resin to exhaust, the nitrate resin will sluff off higher concentrations than found in source water. The twin tank design prevents nitrates downstream during regeneration...but, the Customer must maintain salt in the brine tank to avoid sluffing.
2. Nitrate resin identifies nitrates, nitrites and sulfates...in fact it prefers sulfates first. It reduces 90+%. So, we need a total water analysis that includes nitrates, nitrites and sulfates. Add those 3 together and divide by 17.1 to convert as CaCO₃. 1 cuft nitrate resin has a capacity of 16,500 gr/g as

CaCO₃ (although it doesn't remove hardness...this is a standard industry calculation and way of expressing capacity). Divide your converted gr/g into 16,500 to understand gallon capacity. Aquathin standard load is 1 cuft per tank...but we add more depending on higher nitrate, nitrite, sulfate concentrations.

3. Nitrate resin is anionic regenerating with the chloride side of salt vs. softener cation that uses the sodium side of the salt. Sometimes we load nitrate and softener resin in the same tank to remove hardness as well if source hardness is less than 10gr/g...as an added benefit to the Customer. BUT nitrate resin will not tolerate hardness of 10gr or more. So if the source water is 15 gr/g or 20 gr/g, a softener must be installed upstream of the SYN-N. Nitrate resin doesn't tolerate iron...again the reason for upstream softening and / or iron filter or Superchlorination.

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**From:** AQUATHIN TECH SUPPORT [<mailto:techsupport@aquathin.com>]  
**Sent:** Wednesday, March 02, 2005 1:01 PM  
**To:** [info@Aquathin.Com](mailto:info@Aquathin.Com)  
**Subject:** FORUM Q & A: UPDATE NITRATES

*Dear Aquathin Dealer OnLine, Splash NewsBulletin and Allergic Reaction NewsBulletin Members;*

*Aquathin has received an extraordinary amount of inquiries concerning "nitrates" in the past couple months. We've also supplied a nice amount of solutions !*

*I have pasted at bottom herewith, our original Forum Q & A Nitrates for your convenience; and just above that, you will find a Nitrate FAQ with information from Aquathin University. This FAQ is excellent to print out and provide your Customers concerned with nitrates.*

*RO by itself is not efficient for nitrates. Your patented RODI process is! (refer to Report Card and lab tests). Further, Aquathin deals with water treatment for farm animals and POE with the Aquathin SYN-N Synchronomatic Series Water Conditioner loaded with a nitrate specific resin.*

*I LOVE MY AQUATHIN !*

*Warmest regards to all...as well, your comments are always welcome and very much appreciated.*

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"Alfie"

Alfred J. Lipshultz, President

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## FROM WATER & WASTE WATER DIGEST

Fact sheet: Nitrate in drinking water

This fact sheet from the Washington State Department of Health discusses nitrate as a drinking water contaminant -- where it comes from, health effects, regulations and more.

What is nitrate?

Nitrate is a chemical found in most fertilizers, in manure and in the liquid waste discharged from septic tanks. Natural bacteria in soil can convert nitrogen into nitrate.

How can nitrate get into my well water?

Nitrate can be carried by rain or irrigation water down through the soil and into the groundwater. If your well draws water from this groundwater, your well water may contain nitrate.

Why is nitrate in drinking water a problem?

Nitrate can affect red blood cells and reduce their ability to carry oxygen to the body. In most adults and children these affected blood cells rapidly return back to normal. However the blood cells of infants can take much longer to return to normal. As a result, infants who are given water with high levels of nitrate (or foods made with nitrate contaminated water) may develop a serious health

condition due to the lack of oxygen. This condition is called methemoglobinemia or "blue baby syndrome." Some scientists think that diarrhea can make this problem even worse.

How is nitrate in drinking water regulated?

The U.S. EPA has established a federal drinking water standard, called a Maximum Contaminant Level, of 10 milligrams per liter (mg/L), or 10 parts per million (ppm) for nitrate. Public water systems are required to sample for various contaminants, including nitrate, on a regular basis. There is no required sampling of private individual wells. However, private well owners are encouraged to test their well for nitrate on a regular basis.

Signs of "blue baby syndrome"

An infant with moderate to serious "blue baby syndrome" may have a brownish-blue color due to the lack of oxygen. This condition may be hard to detect in infants with dark skin. In mild to moderate cases babies may have the same symptoms as when they have a cold or another infection (fussy, tired, diarrhea or vomiting). While there is a simple blood test to see if an infant has "blue baby syndrome," doctors may not think to do this test for babies with mild to moderate symptoms.

What to do about "blue baby syndrome"

If your baby has a brownish-blue color, bring your baby to a hospital immediately. There is a medication (methylene blue) that will quickly return your baby's blood to normal.

Prevention of "blue baby syndrome"

The best way to prevent "blue baby syndrome" is to avoid giving your baby water that may be contaminated with nitrate. Infants under one year of age should not drink water exceeding the drinking water standard of 10 parts per million (ppm) of nitrate.

Boiling water will kill bacteria that are in well water, but it will not reduce the level of nitrate.

Nitrate in water will not have a long-lasting effect on your baby. If your baby does not have any of the symptoms of "blue baby syndrome" you do not need to bring your baby to the doctor.

Will breast-feeding give my infant "blue baby syndrome"?

Although nitrate has been found in breast milk, there are no confirmed reports of "blue baby syndrome" being caused by a nursing mother who consumed well water that contained nitrate.

Can nitrate affect adults?

Most older children and adults will not be affected because their red blood cells will be quickly converted back to normal. Some people have conditions that make them susceptible to having health problems from nitrate. This includes:

- Individuals who don't have enough stomach acids.
- Individuals with an inherited lack of the enzyme that converts affected red blood cells back to normal (methemoglobin reductase).

Some studies have found an increased risk of spontaneous abortion or certain birth defects if the mother drank water high in nitrate. Women who are pregnant or who are trying to become pregnant should not consume water that is high in nitrate.

How can I tell if my well water has nitrate?

Shallow wells, poorly sealed or constructed wells, and wells that draw from shallow aquifers are at the highest risk of having nitrate-contaminated water. The only way to know if your private well is contaminated with nitrate is to have it tested. Your county health department can give you information about where you can get your water tested. Nitrate tests usually cost \$25 to \$30 dollars. Nitrate levels can change over time so you should test your well yearly.

Manure and septic tank waste may also contain disease-causing microorganisms such as bacteria and viruses. It is a good idea to test your well for bacterial contamination (coliform bacteria test) when you test your well for nitrate.

Public water systems are tested routinely. Public water systems cannot have more than 10 parts per million (or milligrams per liter) of nitrate. Systems with this high a nitrate level are required to notify their customers.

----- Original Message -----

**From:** [AQUATHIN TECH SUPPORT](#)

**To:** [info@aquathin.com](mailto:info@aquathin.com)

**Sent:** Saturday, February 09, 2002 3:24 PM

**Subject:** FORUM Q & A: NITRATES

*Dear Aquathin Dealer On-Line;*

*We receive numerous requests for nitrate concerns. Below you will read a timely article about nitrates, the negative health affects and source. Additionally nitrates reek havoc with farm animals i.e. cows will not calve and milk reduction. State legal MCL is 10 ppm.*

*RO by itself is not efficient for nitrates. Your patented RODI process is! (refer to Report Card and lab tests). Further, Aquathin deals with water treatment for farm animals and POE with the Aquathin SYN-N Synchronomatic Series Water Conditioner loaded with a nitrate specific resin.*

*Warmest regards,*

*Alfie*

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*Environment - 2/7/2002 12:30:39 PM*

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## *U.S., China share nitrate problem*

**WASHINGTON -- The United States and the People's Republic of China share a common problem — elevated**

*nitrate concentrations in water supplies used for drinking water, according to the US Geological Survey (USGS).*

*While elevated concentrations of nitrate in water have been known to cause illness in babies, there is also indirect evidence that they can cause cancer, officials said. Because of the increased use of fertilizers worldwide since the 1950s, drinking water derived from aquifers in both countries have seen increased levels of nitrate, a plant nutrient regulated by the Safe Drinking Water Act in the United States and by the Ministry of Water Resources in China, according to the report.*

*On average, similar levels of nitrate were found in both countries in areas where heavy agricultural use of nitrate fertilizers is common, said the report's author, Joseph Domagalski, a USGS hydrologist. However, the highest concentrations were measured in China.*

*The Ministry of Water Resources and the USGS agreed to study the groundwater quality of a heavily used agricultural region in northern Hebei Province, located southeast of the city of Beijing, and to compare the quality of that water with similar areas in the U.S. The areas studied in the U.S. included the Central Valley of California and the Delmarva Peninsula of Maryland, Virginia, and Delaware.*

*Despite the fact that the agricultural land in China has been farmed for a much longer time than US land, the patterns of nitrate contamination are similar, said Domagalski. The reason for this similarity includes the increasing worldwide availability of nitrogen fertilizer since the 1950s as part of the Green Revolution to increase agricultural production worldwide. Heavier use of nitrate fertilizer in China, and well construction techniques that allow for easy infiltration of rainwater or irrigation water, account for some of the higher concentrations there.*

*Pesticides were not detected in any of the wells sampled in China. Although it was assumed that similar types of pesticides would be used in both countries, the lower use of these types of chemicals in China probably accounts for the lack of detections in water, the report said.*