ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

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Sodium and Chloride in Drinking Water

INTRODUCTION AND OCCURRENCE

"Salt in drinking water" refers to sodium and chloride levels in your well water. Every water supply contains some natural levels of sodium and chloride and those levels tend to vary based on a water supply's location relative to both natural and cultural features. Overall, sodium and chloride are not major contaminants in the water served by community public water systems in New Hampshire.

Background levels of sodium and chloride for non-developed areas in New Hampshire are typically less than 20 to 30 milligrams per liter (mg/L) or part per million (ppm). Elevated levels of sodium and chloride occur naturally in seacoast area due to air-blown marine spray. Concentrations in groundwater in the seacoast area typically range up to 75 mg/L sodium and 150 mg/L chloride, respectively. Levels of sodium and chloride that are substantially higher than the levels above tend to imply contamination by human activities, including road salt storage/use, discharges from water softeners, human or animal waste disposal, septic systems, and other activities.

HEALTH EFFECTS, STANDARDS AND ADVISORIES

At present, there are no federal or state primary health-based drinking water standards for sodium or chloride. Although there is sufficient scientific evidence that shows that the vast majority of sodium ingestion is from food rather than drinking water, EPA has recommended a drinking water advisory level of 20 mg/L sodium for those persons on a physician-prescribed "no salt diet" related to hypertension treatment.

EPA has identified a secondary or aesthetic standard for chloride of 250 mg/L as a concentration at which chloride can be expected to cause a salty taste in drinking water. New Hampshire has adopted 250 mg/L chloride and 250 mg/L Sodium as state secondary standards under Env-Dw 706.

TESTING

Obtain water sample bottles by contacting an accredited laboratory from the list provided at des.nh.gov, or a web search for "NHDES Private Wells." NHDES recommends testing for the "Standard Analysis" suite of parameters which includes sodium, chloride, bacteria, arsenic, lead, uranium and other important water quality parameters. NHDES recommends testing for the standard analysis suite **every 3 to 5 years**. Samples for sodium and chloride can be collected from any tap in the house and do not require any special handling requirements.

MITIGATION AND TREATMENT

Reducing Contamination Sources

The best method to control sodium and chloride in drinking water is to better manage those activities that add salt into or onto the ground. The following are the most common sources:

> **Water softeners –** Sodium is added to drinking water directly during the water softening process, and concentrated brine is discharged into the subsurface through a home's septic system or drywell. The amount of salt use and discharges from home softening systems can be reduced by a) Avoiding hardness removal unless necessary for levels of 150 mg/L or higher; b) Using non-salt treatment technologies for iron / manganese, c) Selecting "on-demand" equipment regeneration based on actual water use instead of timer-based, d) If softening is necessary, treat only the hot water in your home, and e) Reducing your softener brine setting from the standard 10-12 lb/CF to 6-8 lb/CF of salt.
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> **Road Salt / Sand Mix** – The application of deicing salts to roads is an important component of maintaining road safety. The environmental impact of deicing salts on water supply sources can be minimized by use of best management practices in applying salt to impervious surfaces. Various tactics related to applying road salt like modifying the sand-to-salt ratio, pre-applying lesser amounts of salt before freezing conditions occur, or use of liquid salt solutions generally result in less salt loading to the road surface while maintaining public safety for road travel. For more information concerning road salt management and the effect of road salt on water quality, see NHDES fact sheet WD-WMB-4, "Road Salt and Water Quality."
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> **Septic Discharges** – Elevated sodium and/or chloride may also be indicators of domestic discharges to septic systems. Review the proper setbacks and potential influence from your or your neighbor's septic tank and leachfield, and perform additional sampling for bacteria, nitrates and other dissolved solids. If identified as the likely source of sodium and chloride, immediate steps should be taken to BOIL or use alternate water for cooking and drinking and to replace the well source to reduce risk of exposure to acute contaminants.

Water Treatment - Point of Use Reverse Osmosis

The recommended treatment to remove sodium and chloride from drinking water is Point of Use (POU) Reverse Osmosis (RO) filtration. RO treatment efficiency is only about 25% (1 gallon treated to 3-4 wasted) such that it is best applied only to the water used for drinking and cooking. The "reject" wastewater is directed to the septic system or a drywell, while filtered water is stored in a small pressure tank and dispensed through a dedicated tap. A major benefit of this technology is that it reduces all dissolved water constituents, including smaller ions such as sodium and chloride. Equipment costs for POU-RO range from $150 to over $1,000, but generally have similar performance in terms of salt removal. Look for equipment certified under NSF/ANSI 58 for RO systems.

FOR MORE INFORMATION

Contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov, or visit us at www.des.nh.gov. You may also input your water test results to the [NHDES Be Well Informed](#) water treatment application (available via an internet search) to interpret your results and identify appropriate treatment options.

Note: This fact sheet is accurate as of June 2019. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.