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Typical Contaminants And Problems Sodium Chloride

Knowing how much sodium is in your water may be important to your health. Sodium, a mineral found naturally in most drinking water, is added to water when it is softened. The level of sodium in water is particularly important to people who have to watch their sodium intake for health reasons.

The fact that some patients with heart disease have difficulty in excreting sodium and are put on a low sodium diet has led to the idea that sodium is bad for the heart. However, studies show no direct correlation between sodium concentration and cardiovascular disease mortality.

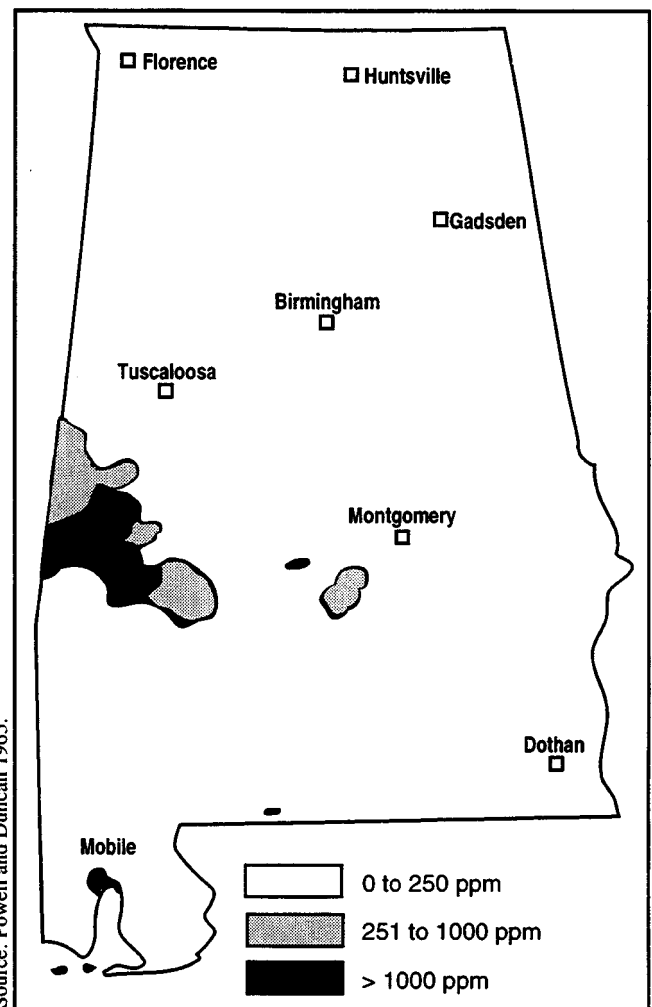
This does not contradict the fact that in some individuals the lowering of sodium in a diet is effective in lowering the blood pressure. Depending on age, general health, and sex, sodium may present a problem in drinking water. If the sodium in water exceeds 20 mg/L, it is advisable to contact the family physician for an opinion.

Chlorides are normally associated with salty water. Sodium chloride is common table salt and also is the primary salt found in seawater. Seawater generally contains about 19,000 mg/L of chloride and 10,500 mg/L of sodium. These two elements make up over 85 percent of the minerals dissolved in seawater.

High chloride levels cause corrosion and shorten the life of pipes, pumps, hot water heaters, and fixtures. High chloride levels can cause human illness and also can affect plant growth at levels in excess of 1000 mg/L. See figure 1 for chloride levels in Alabama groundwater.

Sources Of Sodium Chloride

Sodium chloride is a very common substance found virtually everywhere. It can enter drinking water through both natural and artificial sources, including leaching of underground salt deposits, backwash from water softeners, spray from the ocean, and from salt used on roads in winter. In Alabama, treatment plants do not soften water and highway crews generally use sand instead of salt on icy roads.



Source: Powell and Duncan 1965.

Figure 1. Naturally occurring chloride concentrations in Alabama groundwater.

Treatment Of Sodium Chloride

When To Treat. The EPA suggests 20 mg/L as the amount of sodium to strive for in drinking water. The natural sodium content of fresh water, however, varies from near 0 to more than 500 mg/L, averaging 17 mg/L. Taste threshold is about 250 mg/L for most people. Chloride concentration greater than background levels may indicate possible pollution from sewage sources or toxic chemicals.

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When it is necessary to know the precise amount of sodium present in a water supply, call your water system or, if you have a private well, get a laboratory analysis. Water that has been softened by the ion exchange method will contain an increased amount of sodium. Softened water should be analyzed for sodium when a precise record of individual sodium intake is recommended.

If chloride is present in a well at concentrations above the secondary maximum contaminant level (250 mg/L), the water quality of the well should be evaluated every 6 months to determine if any upward trend exists. If concentrations are increasing, the source of contamination should be found and eliminated. If the source of contamination cannot be located and removed, the well owner can use bottled water for infants. A new well may be the best solution, but drilling a new well will be expensive.

How To Treat. Treatment methods include reverse osmosis and distillation. If your water supply is moderately high in sodium (more than 100 mg/L), small treatment units are available which will produce 3 to 10 gallons of water per day, enough for the usual drinking and cooking needs.

Some anion exchange units are effective in chloride removal.

In most areas water processed by mineral-removal methods is available in bottles. However, bottled spring or mineral water may contain high sodium concentrations.

Sodium Chloride At A Glance

Symptoms: Salty taste; corrosion of plumbing; blackening and pitting of stainless steel.

Causes Of The Problem: Storage or use of road salt; water leached from waste disposal areas; fertilizers; septic systems; and landfills.

Suggested Treatments: Reverse osmosis, distillation, or anion exchange.

References

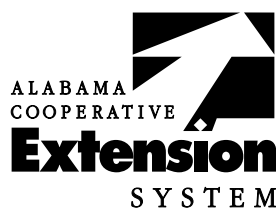
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For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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