

SODIUM IN SOFTENED WATER

Since sodium is added to water softened by the cation exchange process (*mechanical water softening*), the level of sodium in softened water may be of interest to persons on sodium restricted diets.

Table #1 shows the amount of sodium added to softened water of varying original hardness. The harder the water originally, the more sodium that is added.

CONTRIBUTION OF SODIUM FROM WATER SOFTENING TO TOTAL SODIUM INTAKE

Assuming a daily intake of 5 grams (*5,000 milligrams*) of sodium in food and the consumption of 3 quarts of water (*used for coffee, tea, food preparation, and drinking*) the contribution of the sodium (Na+) in the water from the home water softening process compared to the total daily intake can be seen in table #2.

SODIUM RESTRICTED DIETS

Persons who must restrict their sodium intake to 500 milligrams per day should consume water that contains no more than 20 milligrams of sodium per quart. This is assuming that most people consume about three quarts of water per day from all sources (*beverages, food preparation, and drinking*). **Twenty** milligrams per quarts X **Three** quarts equals Sixty milligrams total daily from water.

The 60 milligram level has been suggested since the basic 500 milligram therapeutic diet actually contains about 440 milligrams of sodium from food. This allows 60 milligrams of sodium from water.

The sodium (Na+) is restricted to 1000 milligrams per day, the upper limit for total sodium content of water is about 200 milligrams or about 66 milligrams per quart if three quarts are consumed.

See Table #3 for original hardness limits of softened water for different levels of water consumption.

If an ion exchange water softener is to be used in a home where a person is on sodium-restricted therapy and water hardness is great enough that excess sodium may be consumed by using softened water, a bypass can be installed to provide unsoftened water for drinking and cooking.

In some localities the sodium content of the municipal water supply and water from wells may also be higher in sodium than can be allowed.

Persons on sodium-restricted therapy can obtain advice from a physician or dietitian. The municipal water department will provide a detailed analysis of the water supply. Detailed analysis of well-water can also be obtained. Contact the municipal water department, The Public Health Service, a local water softening dealer, or the Cooperative Extension Service for the name and address of a laboratory which makes this analysis.

Initial Water Hardness Grains per gallon	Sodium added by Cation Exchange Softening of Water	
	Milligrams Na +/-Gallon	Milligrams Na +/-Quart
1	30	7.5
5	149	37
6	179	44
7	209	52
8	239	60
9	269	68
10	298	75
15	447	112
20	596	150
30	894	225
40	1,191	300

Initial Water Hardness/Grains per Gallon	Milligram Na+ Per 3 qts. Softened Water	Milligrams Na+ from Food	Total Na+ Consumed Milligrams	% of Total from Softened Water
1	23	5,000	5,023	0.4%
5	112	5,000	5,112	2.2%
10	223	5,000	5,223	4.3%
15	335	5,000	5,335	6.5%
20	447	5,000	5,447	8.2%
30	670	5,000	5,670	12.5%
40	893	5,000	5,893	15.2%

Total Sodium Level Permitted	Total Sodium Allowed from water	Original Hardness Limits in Grains per Gallon (gpg) if Consumption of Softened Water is:		
		3 Qts.	2 Qts.	1 Qt.
500 mg.	60 mg.	2.6 gpg	4 gpg	8 gpg
1000 mg.	200 mg.	8.8 gpg	13 gpg	26 gpg