



Best Management Practices *for* Commercial and Industrial Water Softeners

Water Quality Concerns Related to the Use of Water Softeners

Water softeners are the most common method of removing the minerals from the water source by adding sodium or potassium chloride to replace calcium and magnesium ions with sodium or potassium ions. This process creates a brine solution that, if discharged to the sewer system, has a chloride concentration over the 225 mg/L local limit and a sodium concentration over the 90 mg/L local limit.¹

Enforcement of Water Softener BMPs

The Napa Sanitation District Code states in Section 4.04.090 that the District may develop BMPs that serve as an enforceable control mechanism for prohibited wastes. The BMPs listed here are required actions that will be assessed when an NSD inspector visits your facility.

By following these BMPs, you should be able to reduce your chloride and sodium discharge below the local limits of 225 mg/L and 90 mg/L respectively, and pass inspections by the NSD Inspector.

Inspections by Napa Sanitation District

Napa Sanitation District may inspect any Industrial or Commercial User's facility to ensure compliance with District Code and to prevent sewer problems. The District has the right at any time to collect a sample of water being discharged from the facility to check for compliance with the local limits found in District Code.

Questions?

If you have any questions, please contact the Napa Sanitation District Regulatory Compliance Division by calling 707-258-6000. These BMPs and the Napa Sanitation District Code are also available on our website at www.napasan.com/

¹ Local limits are technically based, defensible numerical limits imposed on industrial users by the District. The local limits are set for pollutants that can interfere with the treatment process or pass through the treatment process without being removed. Local limits can be found in the District Code online at www.NapaSan.com.

NAPA SANITATION
DISTRICT

1515 Soscol Ferry Road
Napa, California 94559

Phone: 707-258-6000

Fax: 707-258-6048

E-mail: sturnips@napasan.com

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Information About Water Softeners

There are two main types of water softeners: automatic or self-regenerating water softeners and portable exchange tank water softeners. Automatic or self-regenerating water softeners must regenerate when the resin used to remove the calcium and magnesium from the water is no longer viable. Typically, these types of softeners regenerate at a set time and discharge the used brine solution directly to the sanitary sewer.

The same process takes place in a portable exchange tank water softening system, but instead of the waste brine solution being discharged to the sanitary sewer, a water softener company exchanges the tank for a new one and legally disposes of the brine solution.

If you add salt or potassium chloride to your water softener or have a water conditioning company do so, then you have an automatic water softener. If you have a water conditioning service regularly change out the tank on your water softener, you have a portable exchange tank system.

The Best Management Practices (BMPs) listed below can help minimize the discharge of pollutants to the wastewater system. They can also help conserve water, reduce impacts to the wastewater treatment plant and save you money.

The following Best Management Practices are REQUIRED:

These BMPs will be enforced through regular inspections by NSD Inspectors.

Practices

- Any discharge from a self-regenerating/automatic water softener shall not exceed the local chloride concentration limit of 225mg/L.
- Any discharge from a self-regenerating/automatic water softener shall not exceed the local sodium concentration limit of 90 mg/L.
- If you are within the limits of the City of Napa, you must comply with the City's High Performance Building Code Standards. Section A5.303.3 of the High Performance Building Non-Residential Checklist states that:
 - ⇒ *If water softeners are installed as part of a project, they shall comply with NSF/ANSI Standard 44 provisions, including the following features:*
 - ⇒ *Demand-initiated regeneration (DIR) system, not timeclock initiated.*
 - ⇒ *Minimum salt efficiency of 3,350 grains total hardness per pound of salt.*
 - ⇒ *Generate no more than five gallons of water per 1,000 grains of hardness removed during service cycle.*

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The following Best Management Practices are REQUIRED:

- Any discharge to the sanitary sewer system cannot contain concentrations of pollutants of concern that are greater than the local limit. The local limits for chemicals commonly associated with cooling tower use and cleaning are listed below. View the full list of local limits for pollutants of concern in the “Title 4-Sewer Use” section of the Napa Sanitation District Code at www.napasan.com.

Constituent	Local Limit Concentration In milligrams/Liter (mg/L)
Chloride	225
Chromium (VI)	0.538
Chromium (Total)	1.13
Copper	0.388
Sodium	90
TDS	836
Zinc	0.762

The following Best Management Practices are RECOMMENDED:

- City of Napa water has an average hardness of 90 ppm, and City of American Canyon Water has an average hardness of 95 ppm. These levels are considered “moderate” on the hardness scale. Since these levels of hardness should not require the use of a water softener, consider removing your softener unit. If you determine a water softener is necessary for your business, the following practices and alternative water conditioning systems will help you stay below the local limits for chloride and sodium.
- Install a portable exchange water softener. The brine solution is picked up by a water conditioning company instead of being automatically discharged to the sanitary sewer system. The company will properly dispose of the brine solution salts in accordance with legal requirements.
- If you must use a water softener, use potassium chloride instead of sodium chloride as the water conditioning agent.
- Many older models of water softeners operate using a timer. Systems that utilize a timer will regenerate at a certain time even if it is not needed. Consider upgrading to a new water softener that has an on-demand setting, which measures the volume of the brine tank. When the brine tank reaches a certain volume, regeneration will begin.
- If your water softener has multiple hardness settings, make sure you set it for the correct hardness level. As a default, manufacturers often set softeners to the highest level. Set your water softener for the correct hardness level. Making sure that your softener is set at the appropriate hardness level can lessen the amount of salt needed, which saves money and helps reduce the amount of chloride in the wastewater stream. Water from the City of Napa has an average hardness of 90 ppm, and your water softener setting should be chosen with this in mind.
- Consider installing a salt-free water conditioning systems, such as a reverse osmosis filtration system or an activated carbon system.