



Instructions – Delaware River Basin Survey of Salt in Tap Water

Overview

The following is a protocol for documenting salt levels in tap water as represented by the concentration of chloride ions (Cl⁻). Measuring electrical conductivity is also recommended as it can provide additional explanatory information and is directly related to chloride concentration. Questions? Contact David Bressler (dbressler@stroudcenter.org)

Equipment/Supplies

- [Chloride QuanTab® Test Strips, 30-600 mg/L](#) or other chloride measurement method
- Conductivity meter (e.g., [Hanna DiST@3 Waterproof EC Tester](#))
- Conductivity meter calibration solution (e.g., [1413 µS/cm Conductivity Standard](#))
- Data entry form: [Delaware River Basin Survey of Salt in Tap Water](#)

Method

1. Acquire some tap water from a house or building/office. Note: if a water softener is being used, please take the sample from an outdoor tap that is not treated with the softener.
2. Measure chloride using Hach QuanTab strips (see detailed description below).
3. Measure conductivity (make sure to calibrate the meter using conductivity standard beforehand).
4. Enter this information along with the address of the tap water location and water source information into the [data entry form](#) (to find the source of your water check your local water utility’s website).
5. After you submit the data form you will receive a confirmation email with a record of your data and with a link for viewing all data that have been submitted, viewable as a spreadsheet. Summary graphs and maps may be available at a later date.

Chloride strip usage: Follow directions provided by the manufacturer (on back of bottle). The basic process is to stand a test strip vertically in about an inch of water (in any plastic or glass container), wait several minutes for the horizontal yellow line at the top of the strip to turn black, then read the test strip and use the chart to translate results into a chloride concentration (mg/l). Note that the chart conversions may vary slightly between bottles.



Black line at top indicates strip is ready to be read

Chloride level, at peak of white gradient

Quantab Units	%NaCl	ppm(mg/L) Cl ⁻	Quantab Units	%NaCl	ppm(mg/L) Cl ⁻
1.2	0.005	29	4.6	0.034	205
1.4	0.006	35	4.8	0.036	224
1.6	0.007	42	5.0	0.039	239
1.8	0.008	49	5.2	0.042	257
2.0	0.009	56	5.4	0.045	276
2.2	0.011	64	5.6	0.049	296
2.4	0.012	73	5.8	0.052	318
2.6	0.013	82	6.0	0.056	341
2.8	0.015	91	6.2	0.060	365
3.0	0.017	101	6.4	0.065	391
3.2	0.018	112	6.6	0.069	419
3.4	0.020	123	6.8	0.074	449
3.6	0.022	135	7.0	0.079	482
3.8	0.024	148	7.2	0.085	517
4.0	0.027	161	7.4	0.092	556
4.2	0.029	176	7.6	0.099	599
4.4	0.031	189	7.8	0.107	646

Conductivity meter usage: Calibrate the meter using conductivity calibration solution and measure conductivity.

National Recommendations

Standard	Chloride (Cl ⁻)(mg/l)
EPA Secondary Drinking Water Regulation for Chloride	250
EPA Drinking Water Advisory for Sodium (Na ⁺) = 30-60 mg/l	46-93*
EPA Drinking Water Advisory for Sodium (Na ⁺) “low/no salt diets” = 20 mg/l	31*

*Estimate of Chloride concentration based on atomic mass units of Sodium and Chloride (NaCl): Na=23, Cl=35; note other salts such as MgCl₂, CaCl₂, and KCl not considered. <https://www.epa.gov/sdwa/drinking-water-regulations-and-contaminants>; https://www.epa.gov/sites/default/files/2014-09/documents/support_cc1_sodium_dwreport.pdf