

Water Safety

Understanding Drinking Water Standard Testing Results



Water Testing



Homeowners should periodically test their drinking water for coliform bacteria. Testing is recommended annually (*or more frequently if the taste, odor, or water clarity changes*). Coliform bacteria (*common in the intestines of warm-blooded animals*) are indicators of the potential for disease-causing organisms to be present in the water supply. Tests for metals, petroleum products, pesticides, and other chemicals are also available from state or privately operated laboratories. Water sample bottles, information about which test may be most appropriate for your situation, and interpretation of water test results are available from the local health department.

If a water system was completely depressurized during a power outage or if the well was flooded, it is especially important to check the water quality before continuing to consume the water. The water is considered safe for drinking after two consecutive samples, collected 8 hours apart, show that coliform bacteria are not present.

Bacteriological Analysis

Evaluation of bacteriological quality of drinking water is done using “coliform” testing for a group of bacteria found in the intestinal tract of warm blooded animals, surface water, and some soils and decaying vegetation. A positive result may indicate that a water supply is not properly protected from contamination. The ‘Colilert’ procedure also detects E. coli, an organism that always originates from mammal or bird intestinal tracts. If E. coli is detected, it is more likely that the water supply may contain disease-causing organisms resulting from fecal contamination.

Results of Coliform Analysis

Code	Definition
ND	Not Detected – No coliform organisms were detected in the water sample. The sample <u>met the state drinking water standard</u> for bacteriological quality at the time of sampling. (<i>Similar results may be reported as negative, absent, or zero, “0”.</i>)
POS	Positive – Coliform organisms were present in the water sample. <u>Safety cannot be assured.</u> Collection of a resample to confirm the original result is recommended. An investigation into the cause of the problem by a qualified individual is advised. (<i>Similar results may be reported as present or any number from 1 to 200.</i>)
EC-POS	E. coli Detected – E. coli organisms were detected in the water sample. E. coli organisms are found in the intestines of warm blooded animals, and as such, their presence in a water supply is considered an <u>indication of sewage contamination.</u> Precautions are recommended in the use of the water supply. These results are the same as fecal coliform positive; however, E. coli results indicate sewage contamination with <u>more certainty.</u>
Any Code	Coliform organisms may die during sample holding time (<i>time from collection to testing</i>). The laboratory will comment that results may <u>not</u> be representative / valid if sample holding time is <u>longer than 48 hours.</u> The federal standard for a coliform holding time limit for public water supplies is 30 hours.

Partial Chemical Analysis

Drinking water is analyzed for eight parameters in a routine testing procedure referred to as a “partial chemical analysis”. Below is a table of these parameters and associated problems. Except for fluoride and nitrate, the levels listed below are general guidelines. State drinking water standards have been established and are listed for these two chemicals. Test results are reported in milligrams per liter (mg/l) for all parameters.

TEST RESULTS IN MILLIGRAMS PER LITER (MG/L)				
Test	Excellent	Satisfactory	Objectionable	Problem
Iron	0 – 0.2	0.2 - 0.5	Over 0.5	Staining, turbidity taste, odor.
Sodium	0 – 20	20 – 250	Over 250	Taste, special diets may require water of low sodium content
Nitrate as N	0	1 – 10	Over 10	Nitrite poisoning – especially infants.
Nitrite	0 – 0.2	0.2 – 1.0	Over 1	Nitrite poisoning - especially infants.
Hardness CaCo₃	25 – 100	100 – 250	Over 250	Scaling of water fixtures, soap scum at high levels, corrosion at low levels.
Sulfate	0 – 20	20 – 400	Over 400	Laxative, taste, odor, scaling in boilers/heat exchangers.
Chloride	0 – 20	20 – 250	Over 250	Taste, corrosion.
Fluoride	0.8 – 1.7	1.7 – 2.0	Over 4.0	Low levels are beneficial in preventing tooth decay. High levels may cause mottling of teeth.

Direct any questions or concerns regarding drinking water to the St. Clair County Health Department’s Division of Environmental Health, (810) 987-5306 or visit the website www.scchealth.co.



For more sources of information on this topic visit:

ST. CLAIR COUNTY HEALTH DEPARTMENT www.scchealth.co

CENTERS FOR DISEASE CONTROL AND PREVENTION www.cdc.gov

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) www.michigan.gov/deq

MICHIGAN DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT (MDARD) www.michigan.gov/mdard