



Public Health
Prevent. Promote. Protect.
Jackson County Health Department

INTERPRETING WATER WELL TEST RESULTS

*Information taken from the Ohio State University Extension
'[Well Water Interpretation Tool](#)' and from
email communication with Illinois State Water Survey*

LEAD

Typical Range in Jackson County - unknown

GENERAL INFORMATION

Lead is a toxic metal that was used for many years in products found in and around homes. Even at low levels, lead may cause a range of health effects including behavioral problems and learning disabilities. Children, six years old and under, are most at risk because this is when the brain is developing. The primary source of lead exposure for most children is lead-based paint in older homes. Lead in drinking water can add to that exposure. Lead is sometimes used in household plumbing materials or in water service lines used to bring water from the main to the home.

HEALTH EFFECTS

The effects of lead are the same whether it enters the body through breathing or swallowing. Lead can affect almost every organ and system in your body. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately death. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production.

For information about the Health Effects of Lead visit the Lead Program websites for

- [Lead Poisoning Prevention - Children](#)
- [Lead Poisoning Surveillance - Adults](#)

TREATMENT OPTIONS

For information about the Treatment Options of Lead visit the Ohio Department of Health's Private Water Systems - Lead in Drinking Water webpage (http://www.odh.ohio.gov/odhprograms/eh/water/quality_treatment/lead.aspx).

WEBSITE RESOURCES

- Ohio Department of Health - [Lead Program](#)
- USEPA - Water: Drinking Water Contaminants - [National Primary Drinking Water Regulations](#)
- USEPA - Water: Basic Information about Regulated Drinking Water Contaminants - [Basic Information about Lead in Drinking Water](#)
- ATSDR - Toxic Substances Portal - [Lead](#)

FACT SHEETS

- Ohio Department of Health - [Private Water Systems Program - Lead in Drinking Water from Private Water Systems](#)
- ATSDR ToxFAQs Fact Sheet - [Lead](#)
- Water Systems Council - [wellcare® information for you about Lead in Drinking Water](#)

CORROSIVITY

Corrosivity is a measure of how aggressive water is with respect to corrosion of pipes and fittings. Corrosive water can leach iron, lead, copper, etc., from pipes into drinking water and can eventually cause leaks in plumbing. The Larson-Skold index is commonly used to estimate corrosivity, and requires the measurement of alkalinity, chloride, and sulfate in a water sample.

ALKALINITY

Typical Range in Jackson County 150-400; average 300

GENERAL INFORMATION

Alkalinity is the buffering capacity of the water. It measures the ability of water to neutralize acids and bases and thereby maintain a fairly stable pH. Water that is a good buffer contains compounds such as bicarbonates, carbonates, and hydroxides.

Alkalinity is usually reported in milligrams per liter (mg/L) of calcium carbonate (CaCO₃), and usually has a concentration similar to that of total hardness because they form from the same minerals. If the alkalinity is greater than the total hardness, it may indicate that the water passed through a water softener. If the alkalinity is much less than the total hardness it may indicate the elevated levels of chloride, nitrate, or sulfate.

HEALTH EFFECTS

Alkalinity does not pose a direct health risk.

AESTHETIC EFFECTS

High alkalinity (above 500 mg/L) is usually associated with high pH values, hardness and high dissolved solids and has adverse effects on plumbing systems, especially on hot water systems (water heaters, boilers, heat exchangers, etc.) where excessive scale reduces the transfer of

heat to the water, thereby resulting in greater power consumption and increased costs. Water with low alkalinity (less than 75 mg/l), especially some surface waters and rainfall, is subject to changes in pH due to dissolved gases that may be corrosive to metallic fittings.

TREATMENT OPTIONS

Water softening is a common household treatment techniques to address scaling issues.

WEBSITE RESOURCES

- USEPA - Water: Monitoring & Assessment - [Total Alkalinity](#)
- Ohio Department of Health - Private Water Systems - [Water Quality](#)

FACT SHEETS

- Illinois Department of Public Health - [Commonly Found Substances in Drinking Water and Available Treatment](#)

CHLORIDE

Typical Range in Jackson County 2-40; average 10

GENERAL INFORMATION

As groundwater moves through bedrock or sand and gravel geologic deposits in the subsurface, it will dissolve different minerals and constituents including chloride. Chloride occurs naturally in groundwater as a component of deposited salts in geologic formations. The levels of chloride may vary in water wells depending on the type of rock the groundwater moves through and how long the groundwater is in contact with the rock. Deeper wells are more likely to have higher levels of chloride because the groundwater has dissolved many of the naturally occurring minerals over time. Chloride levels in wells that are higher than normal background levels may indicate that chloride has migrated into the groundwater from other sources such as de-icing salt and salt storage areas, brines produced during oil and gas well drilling, sewage effluent, softener discharge, landfills, irrigation drainage, animal manure and fertilizers, and industrial waste.

The presence of chloride does not always mean the water is saline. Water is considered saline when the total dissolved solids in the water reaches levels of 1000 mg/L and greater.

HEALTH EFFECTS

There are no known health effects associated from chloride. Sodium, which is often associated with chloride, may be of concern with people suffering from heart or kidney disease.

AESTHETIC EFFECTS

The water has a salty taste at concentrations above 250 mg/l.

TREATMENT OPTIONS

Treatment systems that can remove chloride from drinking water include reverse osmosis, distillation, and ion exchange. Water softeners, carbon filters, and sediment filters do not remove chloride.

WEBSITE RESOURCES

- Ohio Department of Health - [Private Water Systems Program - Water Quality - Chloride](#)
- USEPA - Water: Drinking Water Contaminants - [Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals](#)

SULFATE

Typical Range in Jackson County 0-150; average 30

GENERAL INFORMATION

Sulfate is a substance that occurs naturally in drinking water.

HEALTH EFFECTS

People unaccustomed to drinking water with elevated levels of sulfate can experience diarrhea and dehydration. Infants are often more sensitive to sulfate than adults. As a precaution, water with a sulfate level exceeding 400 mg/L should not be used in the preparation of infant formula. Older children and adults become accustomed to high sulfate levels after a few days.

AESTHETIC EFFECTS

If sulfate in water exceeds 250 mg/L, a bitter or medicinal taste may render the water unpleasant to drink. High sulfate levels may also corrode plumbing, particularly copper piping. In areas with high sulfate levels, plumbing materials more resistant to corrosion, such as plastic pipe, are commonly used.

TREATMENT OPTIONS

Treatment systems that can remove sulfate from drinking water include reverse osmosis, distillation, and ion exchange. Water softeners, carbon filters, and sediment filters do not remove sulfate.

WATER RESOURCES

- Ohio Department of Health - [Private Water Systems Program - Water Quality](#)
- USEPA - Water: Drinking Water Contaminants - [Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals](#)

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