

Questions & Answers

Should I Boil Water For Formula?

Answer: No. While many sources recommend boiling water prior to infant formula preparation to “sterilize” the water, parents should be cautioned not to boil water that has unknown chemical or mineral content. Boiling water will not remove chemical constituents and may increase the concentration of potentially dangerous chemicals, such as nitrates, nitrites, and sodium. A partial chemical analysis should be done prior to boiling well water. It is not necessary to boil bottled water or water that has tested non-detect for bacteria.

Does an inline water filter remove contaminants making the water safe?

Answer: No. Inline water filters do not remove bacteria, nitrates, or sodium. There is no simple filter system for the removal of bacteria. Reverse osmosis system, ion exchange, or distillation units could be installed to lower concentrations of dissolved minerals. This equipment requires frequent, careful maintenance and sampling to achieve and confirm effective operation.

What should I test for?

Answer: Bacteria and Partial Chemical

What do I do if my water tests positive for bacteria?

Answer: Do not drink the water. Do not use it for formula or food preparation, brushing teeth, etc. Simple procedures will be provided to you to chlorinate the water supply with household chlorine bleach.

After removal of all of the chlorine through flushing, the water supply should be re-sampled. A non-detect result should be obtained prior to drinking.



Water Testing

Testing your well water is an easy and low cost way to ensure the safety of the water your family is consuming. Water sample bottles are available at all of the health department offices.

Water Sample Tips

- ✓ Use a clean, indoor faucet. Try to avoid threaded taps, leaky or swing-type faucets.
- ✓ Do not use a dirty or contaminated tap.
- ✓ Do not sample through a hose or treatment device.
- ✓ Always sample the cold water.
- ✓ Allow the water to run in a steady stream at least 5 minutes before collecting the sample or until the pump runs.
- ✓ Do not set the bottle cap down or touch the inside of the cap or bottle.
- ✓ Do not allow the cap or bottle to touch the faucet.
- ✓ Do not rinse the bottle.
- ✓ Maintain a steady low-flow stream.
- ✓ Fill the container to the fill line. Do not overfill.
- ✓ Seal the container as soon as it is filled.
- ✓ Collect sample Monday, Tuesday, or Wednesday and

Water Sample Test Kits

Available at the Health Department.

Bacteriological - \$20.00 Uranium - \$18.00

Partial Chemical - \$18.00 (including nitrate, nitrite, sodium, sulfate, fluoride, hardness, chlorides)

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WESTERN UPPER PENINSULA DISTRICT HEALTH DEPARTMENT

Women, Infants, and Children

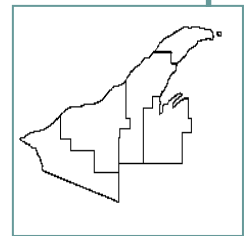
INFANT FORMULA AND WELL WATER



What Moms Need to Know.



- Safe Formula Preparation
- Bacteria
- Nitrates
- Other Chemicals
- Water Testing
- Questions and Answers



WELL WATER & INFANT FORMULA SAFETY

Breast milk is the best food for babies, however some mom's choose to prepare infant formula. Infants, children, and pregnant women are particularly vulnerable to illnesses from contaminated water. The American Academy of Pediatrics (AAP), as well as Western U.P. District Health Department recommends that pediatricians and health care professionals ask parents about well water use during prenatal and well-child visits.

Groundwater wells in the Western Upper Peninsula can be unsafe to drink or have objectionable levels of naturally occurring chlorides, hardness, sodium, fluorides, iron, etc. If the family drinks well water or prepares infant formula with well water, the well should be tested prior to use.

Formula Safety

- If you are unable or do not want to test your well water, all infant formula and food should be prepared with purchased bottled water or water from a public municipal water supply.
- Always wash your hands with warm running water and soap prior to handing items for formula preparation.
- Sterilize new bottles and nipples in boiling water for 5 minutes prior to use. Wash with dishwashing detergent and rinse with hot water between uses.
- You should discard any left over formula in the bottle that is not finished during the feeding.
- If you prepare more than one bottle at a time, store the bottles immediately in the refrigerator and use them within 24 hours.

Bacteria in Well Water

Evaluation of the bacteriological quality of drinking water is done using "coliform" testing. Coliform bacteria are found in the intestinal tract of warm-blooded animals, surface water, some soils, and decaying vegetation. Coliform bacteria are used as "indicator" organisms, and its absence (non-detect results) indicates safe drinking water.

If they are present, pathogenic, or disease-causing organisms, could be present. A positive result may indicate that a water supply is not properly protected from contamination and could result in gastrointestinal illness, especially in infants and children. Gastrointestinal illness in infants and children may lead to flu-like symptoms of nausea, diarrhea, vomiting, fever, and dehydration.

Older water wells with sub-standard construction are particularly vulnerable to bacteriological contamination. No supply should be considered safe unless it is routinely sampled. It is recommended that all private water wells be tested annually for bacteria.

Nitrates in Well Water

Infants consuming water with high levels of nitrates can develop "Blue Baby" syndrome. An estimated 15 million families drink water from private, unregulated wells, and 2 million families from wells that fail to meet the federal drinking-water standards for nitrate. Nitrates occur from a natural component of plants and soil, sewage disposal systems, run-off from barnyards or nitrate-containing fertilized fields that often seep into well water. Formula and food prepared with well water may cause nitrate poisoning in infants, called methemoglobinemia, a dangerous blood condition that limits oxygen in the circulation. Symptoms may include blue discoloration of the skin, especially around the mouth, hands, and feet and irritability. Other symptoms may include shortness of breath, lethargy, loss of consciousness, diarrhea and vomiting. Convulsions and death can occur at extreme high levels. Infants and children should not consume water above the EPA Maximum Contaminant Level of 1 mg/L nitrite or 10 mg/L nitrate.

Other Chemicals in Well Water

There are other naturally occurring dissolved minerals in well water that are of concern to infants and children, depending on the concentrations, such as:

Sulfate—Levels over 500 mg/L may have a laxative effect resulting in diarrhea.

Fluoride—Low levels are beneficial in preventing tooth decay. A fluoride supplement may be needed if the level is below 0.7 mg/L. Infant formula should be prepared with water that is fluoride-free or contains low levels of fluoride. Elevated levels of fluoride above 2 mg/L may cause dental fluorosis, a brown staining and/or pitting of the permanent teeth in young children. Dental fluorosis occurs when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels. Exposure to high levels over 4 mg/L for many years may also cause crippling skeletal fluorosis, a serious bone disorder.

Uranium— Scattered water wells in the Western Upper Peninsula have been found to contain uranium in amounts that exceed the federal Maximum Contaminant Level of 30 ug/L. The health effects of uranium exposure in the amounts that we have seen are mainly limited to kidney damage with long-time use. There is also a very small possibility of an increased risk of cancer over a lifetime of exposure.

Sodium—Excessive sodium intake is not healthy, especially for infants or persons on a salt restricted diet. The EPA guideline for sodium in drinking water is 20 Mg/L. The recommended daily intake of sodium for infants 0-6 months of age is 120 mg. Excessive sodium intake can lead to diarrhea, excessive salivation and thirst, exhaustion, fluid retention, high blood pressure, hyperactivity, seizures, and tremors. Home water softener equipment can also increase the sodium content.