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Total Coliform Bacteria

COLIFORM BACTERIA

The total coliform bacteria test is a primary indicator of "potability" or suitability for consumption, of drinking water. It measures the presence or concentration of total coliform bacteria, which are associated with the possible presence of disease causing organisms.

SOURCE:

Coliform bacteria are a natural part of the microbiology of the intestinal tract of warm blooded mammals, including man. Coliform bacteria can also be found in soil, other animals, insects, etc. The total coliform group is relatively easy to culture in the lab, and therefore, has been selected as the primary indicator bacteria for the presence of disease causing organisms.

POTENTIAL HEALTH HAZARDS:

Coliform bacteria are not pathogenic (disease causing) organisms, and are only mildly infectious. For this reason these bacteria are relatively safe to work with in the laboratory. If fecal coliforms or *E. coli* are found in water, there is a high probability that other pathogenic bacteria or organisms, such as *Giardia* and *Cryptosporidium*, may be present. Public drinking water suppliers are required to demonstrate the absence of total coliform bacteria in the drinking water they provide. At this time, there are no regulations governing individual water wells. It is up to the private well owner to have his or her water tested.

TESTING:

The most common test for total coliform bacteria is a Presence/Absence test such as Colilert or Colisure (\$25). The Colilert and Colisure methods uses nutrient indicators that produce color and or fluorescence when metabolized by total coliform, and *E. coli* bacteria. This method takes only 24 hours and costs \$25.

Montana Environmental Laboratory is certified for these techniques. Your sample must be collected in a specially prepared, sterile bottle for the test to be valid. Please contact us to obtain such a bottle. The bottles contain a small amount of sodium thiosulfate to remove any chlorine present, and have been sterilized. Sample collection should be done very carefully and directly into the bottle from the tap to avoid contamination of the bottle from hands or a transfer vessel such as a cup. The sample should be kept cool and **must be delivered to the lab within 30 hrs for analysis.**

TREATMENT:

Bacteria are removed by disinfection and/or filtration. Filtration alone may not be completely effective, but it can improve the performance of disinfectants by removing sediment that can shelter the bacteria.

Common disinfectants include chlorine, iodine, ozone, ultraviolet light, and physical methods such as boiling or steam sterilization. Chlorination is still the most common disinfection method in the United States, although recent concerns have been raised about the reaction of chlorine with organic matter in water. Such a reaction can result in the formation of trihalomethanes, which are suspect carcinogenic compounds. For most individual water supply systems, the most common form of treatment is ultraviolet disinfection.