

Coliform Bacteria in Drinking Water Supplies



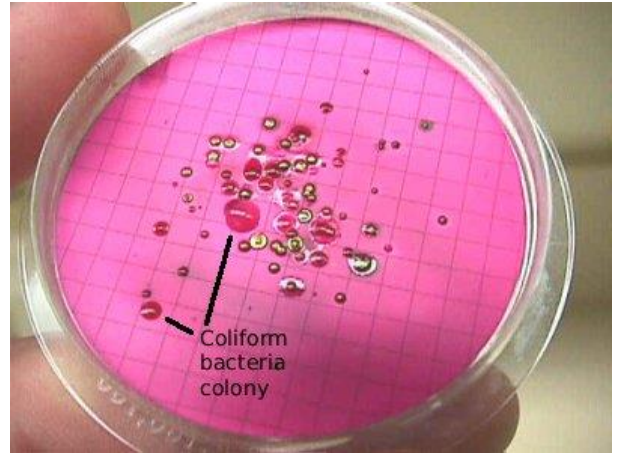
Coliforms are bacteria that are always present in the digestive tracts of animals, including humans, and are found in their wastes. They are also found in plant and soil material.

Water pollution caused by faecal contamination is a serious problem due to the potential for contracting diseases from pathogens (disease causing organisms).

Frequently, concentrations of pathogens from faecal contamination are small, and the number of different possible pathogens is large. As a result, it is not practical to test for pathogens in every water sample collected. Instead, the presence of pathogens is determined with indirect evidence by testing for an "indicator" organism such as coliform bacteria.

Coliforms come from the same sources as pathogenic organisms. Coliforms are relatively easy to identify, are usually present in larger numbers than more dangerous pathogens, and respond to the environment, wastewater treatment, and water treatment similarly to many pathogens. As a result, testing for coliform bacteria can be a reasonable indication of whether other pathogenic bacteria are present.

- Faecal coliforms are the group of the total coliforms that are considered to be present specifically in the gut and faeces of warm-blooded animals. Because the origins of faecal coliforms are more specific than the origins of the more general total coliform group of bacteria, faecal coliforms are considered a more accurate indication of animal or human waste than the total coliforms.
- *Escherichia coli* (*E. coli*) is the major species in the faecal coliform group. Of the five general groups of bacteria that comprise the total coliforms, only *E. coli* is generally not found growing and reproducing in the environment. Consequently, *E. coli* is considered to be the species of coliform bacteria that is the best indicator of faecal pollution and the possible presence of pathogens.



Are Coliform Bacteria Harmful?

Most coliform bacteria do not cause disease. However, some rare strains of *E. coli*, can cause serious illness. Recent outbreaks of disease caused by *E. coli* have generated much public concern about this organism.

Coliform Testing

Testing for bacteria is the only reliable way to know if your water is safe. You cannot tell by the look, taste, or smell of the water if disease-causing organisms are in it. The most basic test for bacterial contamination of a water supply is the test for total coliform bacteria.

When Should I Test?

Late spring or early summer are the best times to test, since coliform contamination is most likely to show up during wet weather. Whether your test results are positive or negative, understand that the sample you collected is just a "snapshot" of the sample sites water quality. The more samples you have tested, the more confident you can be about the quality of the water you are drinking.

What do the Results Mean?

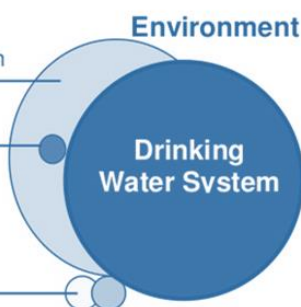
If coliform bacteria are present in your drinking water, your risk of contracting a water-borne illness is increased. Although total coliforms can come from sources other than faecal matter, a positive total coliform sample should be considered an indication of pollution in your water supply. Positive faecal coliform results, especially positive *E. coli* results, should be considered indication of faecal pollution in your water supply.

Total Coliform Bacteria Group

Total Coliform Bacteria Group
= Environmental Contamination

E. coli Bacteria

Viruses and protozoa - not part of the coliform bacteria group but are still harmful



If you are concerned about possible contamination of your water, please feel free to contact BN Kirk (Natal) cc on (031) 205 1245 or send an email to labmanager@bnkirk.co.za for a full list of accredited tests and an obligation free quote.