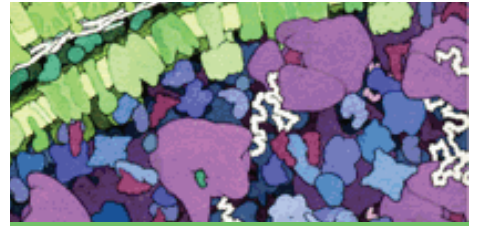


# FACT SHEET



Cross-section of a small portion of an Escherichia coli cell.

## Microbiology

### introduction

Microbiology is the study of organisms that are generally too small to be seen by the unaided human eye. Micro-organisms include protozoa, algae, fungi, bacteria and viruses. Microbiology is one of the most important and exciting of the biological sciences.

As a basic biological science, microbiology has provided much of our current understanding of the chemical and physical principles behind living processes.

It is also an applied biological science, dealing with aspects of medicine, agriculture, biotechnology, food technology and pollution control.

Some of the most significant diseases in humans, animals and plants are caused by micro-organisms. MPL Laboratories' microbiological department tests water for the presence of potentially harmful microorganisms to human health.

When analysing drinking water samples there are several tests which are performed to provide an indication as to whether water is fit for human consumption. As it is not possible to test for every pathogen, MPL tests for a select group of organisms that are found in faeces, known as indicator organisms.

### indicator organisms

#### *Heterotrophic Plate Count*

The heterotrophic plate count (HPC) is a procedure for estimating the number of live bacteria in water and is expressed as colony forming units per millilitre (cfu/ml). It is primarily used as an indicator of the effectiveness of the treatment regime that is in place. The heterotrophic plate count in itself is NOT an indicator of any health risk.

#### *Faecal Streptococci*

Faecal Streptococci are a specific group of bacteria that are found in both human and animal faeces. They also persist in the water supply for extended periods and are therefore a valuable indicator for determining the extent of faecal contamination of a water source. It is particularly useful when used in conjunction with the detection of total coliform bacteria (see below).

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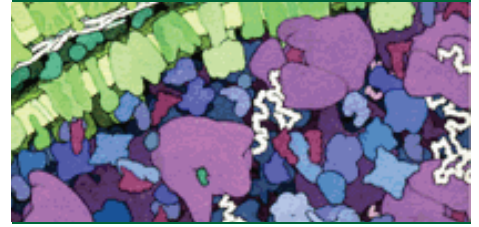
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Cross-section of a small portion of an Escherichia coli cell.

## *Total Coliforms*

The coliform group of microorganisms, like Faecal Streptococci, are used as an indicator of faecal contamination of a water supply as they are present in high numbers in faeces. Many coliform organisms can also be found in the environment (i.e. soil). Levels of total coliforms are expressed as colony forming units per 100 millilitres (cfu/100ml).

## *Thermotolerant Coliforms*

The presence of high numbers of coliform organisms of any type (see above) is unacceptable and indicates a potential health risk. By testing these organisms for thermotolerance (heat resistance to 44 °C) and then performing further biochemical tests, the presence of Escherichia coli (a major faecal coliform) can be detected and confirms a significant health risk. Again, levels of E. coli are expressed as colony forming units per 100 millilitres (cfu/100ml).

## why MPL

MPL Laboratories is NATA Accredited (Accreditation No. 9804) for Microbiological Testing for water testing (including potable, process and effluents).

## other microbiological testing

- Legionella testing
- Surface & Airborne Bacteria
- Surface & Airborne Yeast / Mould
- Amoebae
- Pseudomonas aeruginosa
- Naegleria fowleri

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