

Cryptosporidium and Giardia



Analysis for:

Cryptosporidium and Giardia

Limit of Reporting:

1/10L

Components:

Cryptosporidium

C. parvum

C. hominis

Giardia

Giardia duodenalis

Sampling Requirements:

- Two sterile plastic 10L containers for most samples (analysis available for 1 to 100 litres depending on the water/wastewater type). Sodium thiosulphate dosed.
- Transport & store at 20°C or lower if practical.
- Process within 96hrs of collection.

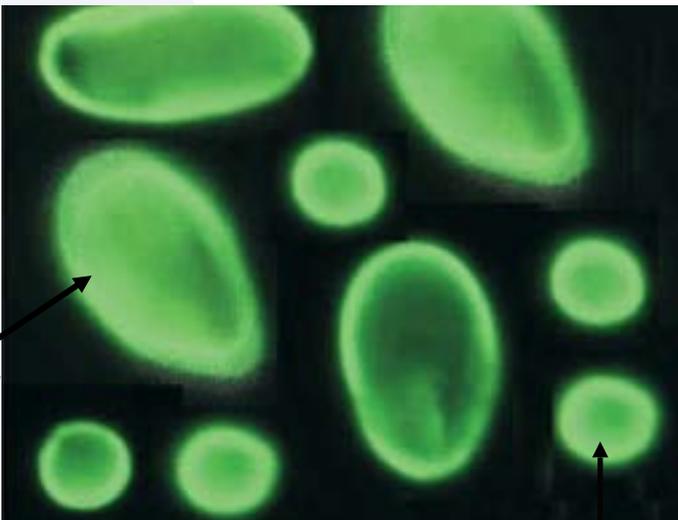
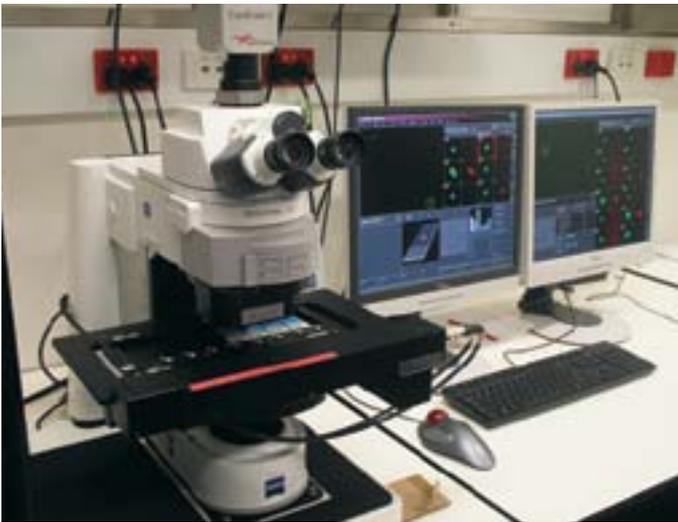


Cryptosporidium and Giardia Testing

The AWQC provides NATA accredited analyses for the detection and enumeration of *Cryptosporidium* and *Giardia*. Further, using various probes and fluorescent *in-situ* hybridisation techniques (FISH) and genotyping analyses we are able to speciate and determine the origin of the oocysts present in water samples.

These tests can be conducted on all water types where *Cryptosporidium* oocysts and *Giardia* cysts have been detected, source waters, drinking water, swimming pools, sewage and sewage effluent.

The AWQC Microbiology Services Team is supported by an internationally recognised and awarded team of Research Scientists who have collaboratively developed and validated these test methods to harness the latest cutting edge technologies. The Microbiology Services team was awarded an SA Water Award for the introduction of these tests in 2012.



Giardia cysts

5 μ m

Cryptosporidium oocysts

Overview

Cryptosporidium is an important human, as well as animal pathogen, and one of the most frequent causes of waterborne disease. A microscopic parasite, it causes the gastrointestinal illness in humans, Cryptosporidiosis, with symptoms of severe diarrhoea. The parasite can survive outside the body for long periods protected by an outer shell that also renders it resistant to chlorine disinfection.

Giardia duodenalis is a human intestinal protozoan parasite that can survive in the environment as cysts. The cysts are shed in faeces in large numbers and are highly infectious. Symptoms of *Giardia* infection include diarrhoea that can last for days or weeks, abdominal cramps, fatigue and weight loss. The cysts are typically ingested via contaminated waters, swimming in ponds, drinking from streams etc.

Value of the tests

Outbreaks of infection caused by *Cryptosporidium* and *Giardia* have devastating effects on the productivity of communities. There have been several serious outbreaks around the world with the largest (Milwaukee, 1993) affecting 400,000 victims. Closer to home there have been several incidents and outbreaks of Cryptosporidiosis in Australia associated with private water supplies and swimming pools, the most major of which was the identification of *Cryptosporidium* in a water supply several years ago.

The information generated by the basic test is invaluable in managing and keeping our potable water sources safe and pathogen free from a public health standpoint. In addition detections in surface waters often follow large rainwater events. When detections do occur we can determine the source of the contamination ie. human, sewage effluents or animal waste with the identification of the animal or bird responsible by coupling the FISH technologies with the various probes (eg. *C. hominis*, *C. parvum*, human infectious *Cryptosporidium*). Not all *Cryptosporidium* species are infectious to humans. By using the additional techniques of FISH and genotyping we can assess the risk to human health. This allows for informed management of sites and bodies of water as well as treatment plants etc.

Methodology

Isolation of *Cryptosporidium* and *Giardia* is achieved by concentrations of the organisms from large volume water or waste water samples (see Sampling Requirements) by flocculation or filtration using USA EPA Method 1623. Corrections for recovery rates are made for each individual sample with results expressed as number of organisms detected per sample volume tested. The method detects both *Cryptosporidium* and *Giardia*.

FISH results can be available the same day as *Cryptosporidium* counts allowing superior responses to detections.

Please contact us to discuss your requirements and to request a competitive quotation for your testing needs.