

WATER UK BRIEFING NOTE



E. COLI (ESCHERICHIA COLI) O157

SUMMARY

- **The bacterium E coli is a normal inhabitant of human and animal gut and is widely used as a sensitive indicator of faecal contamination when found in water.**
- **E coli 0157 is a particularly virulent strain of the organism, which is normally only found in animals and is transmitted through contaminated milk or meat products.**
- **There is a strict EU zero standard for all E coli organisms (including 0157 strain) in drinking water.**
- **Normal disinfection is very effective in ensuring the safety of drinking water from E coli 0157.**
- **Water suppliers place the highest priority on protecting water supplies from microbial contamination.**

TECHNICAL BACKGROUND

Where does E.coli come from?

The bacterium *Escherichia coli* (*E. coli*) is a normal inhabitant of the human bowel and normally does not cause any problems, although some strains can cause disease. Because it is so prevalent in faecal material and is easily identifiable in very low numbers in water samples, it is routinely used as an indicator of faecal contamination.

E. coli O157, sometimes called enterohaemorrhagic *E. coli* or EHEC, is a highly virulent strain of the bacterium, which produces a toxin that causes bloody diarrhoea and can result in complications resulting in kidney failure and death in vulnerable individuals. Most infections with EHEC are associated with the consumption of contaminated meat products and subsequently transmission between infected individuals. EHEC is highly infective with less than 100 bacteria sufficient to initiate a human infection.

What standards apply to E coli in drinking water?

UK Regulations and the EU Drinking Water Directive set a mandatory standard of zero *E. coli* in 100 ml. *E. coli* O157 will not occur in isolation from other *E. coli* and thus the standard provides protection against all species of *E. coli*. The UK regulations also require regular routine testing for *E. coli*, and compliance with the standard, therefore gives very high confidence that *E. coli* O157 will not be present. Although rare, any

detection of *E. coli* in drinking water supplies will be immediately investigated and appropriate remedial action taken.

How is the quality of drinking water assured?

Water suppliers place the highest priority on protecting drinking water from microbiological contamination. The strict mandatory EU requirement for all *E coli* organisms means that drinking water is normally disinfected. This will ensure that the *E coli* strain O157 cannot be present in public drinking water supplies.

Properly treated drinking water has not been associated with any infection by *E. coli* O157. The only occasion that there has been a serious outbreak of disease as a consequence of *E. coli* O157 contamination in public drinking water was in Canada, where the water supply was not properly run and treatment, including disinfection, was inadequate.