TECHNICAL DATASHEET

Pseudomonas Aeruginosa

Following the latest guidelines from the Department of Health (DoH) an increased focus is to be placed on the testing and monitoring for the presence of Pseudomonas aeruginosa at hospitals that provide augmented care.

Pseudomonas aeruginosa are opportunistic pathogens that pose a particular risk to patients who are compromised. There has been an association between the presence of aeruginosa in water from taps and other outlets and infection/colonisation in patients in augmented care units.

Augmented care involves paediatric or adult critical care, neonatal and burns units.

ALS Environmental are able to offer analysis to test for and confi rm the presence of Pseudomonas aeruginosa. This is in accordance with the Health Technical Memorandum (HTM) 04-01 addendum "Pseudomonas aeruginosa - advice for augmented care units.

The DoH lays a specifi c guidance for the monitoring of Pseudomonas aeruginosa due to its ability to grow in very low nutrient aqueous environments and is particularly significant as a cause of nonsocomial infections.

TABLE 1

Hazard	CFU in 100ml	Action
Pseudomonas aeruginosa	0	Satisfactory
	1-10	Retest and refer back to those responsible for the Water Safety Plans to determine what actions are required
	> 10	Investigate cause and put corrective actions in place

The HTM04-01 addendum outlines the potential impacts of samples taken from pre and post fl ushing, as outlined in Table 2:

TABLE 2

CFU in 100ml	Action
High P. aeruginosa count pre-fl ush (>10cfu/100ml) and low post fl ush count (<10cfu/100ml)	Suggestive of a local outlet problem
High P. aeruginosa count pre-fl ush (>10cfu/100ml) and high post fl ush count (>10cfu/100ml)	Suggestive of a systematic problem

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TABLE 3

Type	Method	Laboratory variances
Pseudomonas species	Water samples are fi ltered through a 0.45µm membrane and placed onto selective agar and incubated. Following incubation, presumptive colonies are confi rmed using an oxidase test	No caesin hydrolysis, limited or no growth on pseudomonas-CN agar at 37°C
Pseudomonas aeruginosa	Water samples are fi ltered through a 0.45µm membrane and placed onto selective agar and incubated. Following incubation, presumptive colonies are confi rmed by pigment production and caesin hydrolysis	Grow well at 37°C, produce pigment of Pseudomonas-CN agar

The method used to analyse for Pseudomonas aeruginosa follows the guidance in "Annex 4 – Microbiological examination of water samples for P. aeruginosa". Our UKAS 17025:2005 accredited method uses a secondary confi rmation stage to reduce the risk of type I errors occuring in the laboratroy.

Type I errors occur when a false positive result is reported in the laboratory Type II errors occur when a positive result is falsely rejected.

ALS Environmental are able to offer a wide range of analysis to help assist healthcare facilities in the identifi cation of bacteria and protozoa that may have a pathogenic nature, especially in the immunocomprimised. Our Microbiological analytical laboratories in Coventry and Wakefi eld can offer testing for:

- Legionella
- E-coli
- Coliforms
- Streptococcus
- Staphlycoccus
- Legionella PCR – 24
- Cryptosporidium

ALS are able to provide results for Pseudomonas aeruginosa utilising our rapid confi rmation technique; this allows us to provide customers with confi rmed positive results a day quicker than the standard cutlure method. This confi rmation technique is allowed under the HTM04-01 addendum and is DWTS accredited for drinking waters. The rapid confi rmation utilises culture based methods and can provide a broad speciation for a range of bacteria including Legionella, Coliforms and E-coli. This enable our clients to act quicker with confi dence in the laboratory results, something that is critical when dealing with immunocompromised patients.

References

Health Technical Memorandum 04-01: Addendum. Pseudomonas aeruginosa - advice for augmented care units. Ashcroft, P. (2013)

ALS Environmental Ltd., Torrington Avenue, Coventry, CV4 9GU, U.K.
Tel: +44 (0)24 7642 1213 Fax: +44 (0)24 7685 6575 • Email: info.ukenviro@alsglobal.com
www.alsenvironmental.co.uk

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