Biotech Laboratories
AIR FOOD WATER ENVIRONMENTAL TESTING

Water Testing for Legionella

Legionella levels must be interpreted based on the level of bacteria, not on the specific species of Legionella found. That is, the water sample may have Legionella pneumophila serogroup 1, Legionella pneumophila serogroup 2-15 or another species of Legionella that is not L. pneumophila. The actual type of Legionella detected has no bearing on the action required. All Legionella detections are unacceptable and require remediation and follow up to ensure the action taken is effective.

Water Cooled Air-conditioning Systems

In Australian Standard AS/NZS 3666 it requires the Heterotrophic Plate Count or Standard Plate Count (SPC) be less than 100,000 CFU/mL and that the Legionella Count be less than 10 CFU/mL. Both these analyses are required to be performed monthly when the system is in use.

Over a 12-month period cooling towers with positive detection of Legionella varies between approximately 5 and 10 per cent. Levels tend to be higher in late summer and autumn.

The SPC analysis is used as a general indicator of the effectiveness of the disinfection system in use. A high SPC does not, in itself, represent a health risk. Nor does it have a direct relationship with the presence or absence of Legionella bacteria in the system. A low SPC (e.g. <2,000 CFU/mL) does not guarantee an absence of Legionella. In fact, some researchers have proposed that the highest risk state occurs when the Legionella count is higher than the SPC.

The majority of disease outbreaks occur when the Legionella level is equal to or above 1,000 CFU/mL, however sporadic cases may occur at lower concentrations.

Sample collection must be designed to include potential sources of high Legionella concentration as well as sources that will be directly responsible for aerosol production.

Domestic and Health Care Facilities' Warm Water Systems

The presence of Legionella in warm water systems represents a risk as the bacteria can be ingested or inhaled via domestic outlets, including taps and showers. In this situation disease outbreaks have occurred at levels in the low 100's and it is therefore essential that all positive detections be regarded as high risk situations.

Water collection should include 'first catch' samples and 'flush' samples. It is important to remember that the first 25 mL represents the tap/faucet/showerhead/Thermostatic Mixing Valve (TMV) and flexible or metal pipes directly associated the tap or showerhead.

If you are testing the showerhead or tap and possibly the TMV depending on its distance from the tap, then only a 'first catch' sample of 20 to 25 mLs should be taken from when the tap is first turned on. The 'flush' sample, as the name suggests, is collected after all water from the showerhead, tap, TMV and pipework running back to the main recirculating water line is flushed. After letting the tap run for a few minutes the next 100mL sample represents the recirculating water supply or 'flush' sample.