

Contamination in domestic water systems.

Consider what happens when water outlets are removed and deadleg pipework (branch pipes) are capped (blanked off). Once capped, blind-end pipework exists - normally this pipework should be cut back as far as possible or better still removed. However, when short lengths of pipework remain they contain water that stays stagnant for extended periods of time – possibly for many years. Water temperatures in this pipework settles to somewhere between the surrounding ambient temperature and the common water pipe supply temperature; in hot water pipework this may be close to the optimum legionella growth temperature of 37°C.

Legionella has been shown to thrive in blind-end pipework as biofilms lining the internal areas of pipework are free to grow, avoiding the streaming forces created by water flows and a supply of micro-organisms from the re-circulated hot water provides a source of nutrients. Legionella in blind-end pipework may also avoid the effects of raised hot water temperatures, purging / flushing and chemicals. Over extended periods of time luxuriant growths of legionella may occur which can creep up the blind-end towards and eventually enter the common hot water pipework - this is often referred to as retrograde contamination. However, this type of legionella colony is not normally stressed by hydraulic shocks that have been shown to release significant numbers of bacteria at any one time into water flows. Legionella from blind-end pipework are normally slowly “seeded” into and diluted by large volumes of re-circulated hot water. The volume of stagnant water even in 500mm x 15mm blind-end pipework or a blanked end on a pump set for example may appear small, however, it can support a significant number of legionella. This is sometimes called retrograde contamination, people may refer to this as “seeding” or use different terms when considered in different circumstances and applications.

We continue to hear of new devices providing the latest legionella control solution to counteract these problems and I have experienced many successful applications in the use of silver/copper and chlorine dioxide. However, there are no single quick fixes and you can't just pick one product for the whole domestic water system! It is important to consider all the different parts of the system (central - distribution – peripheral) and how the controls for all parts interrelate and for the life time of the water system. I strongly advise that you consult your independent legionella control risk assessor for unbiased and detailed legionella control advice providing this person is competent ([competence click here http://www.whtlimited.com/doc/lib/198/wms-guidance-in-competence.pdf](http://www.whtlimited.com/doc/lib/198/wms-guidance-in-competence.pdf)).



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