Development of equipment for in situ studies of biofilm in hot water systems

New equipment was developed for in situ studies of biofilms in hot water tanks and hot water pipes under normal operation and pressure. Sampling ports were installed in the wall of a hot water tank and through these operating shafts were inserted with a test plug in the end. The surface of the test plugs was made of the same material as used in the hot water system and the test plugs were flush with the inner surface of the tank. When the operating shaft was removed from the tank, biofilm could be collected. In the distribution system, biofilm samples were collected from test plugs inserted in sampling ports in a by-pass. Heterotrophic plate counts (HPC) revealed $10^4$-$10^6$ CFU cm$^{-2}$ on the test plugs in the hot water system after an exposure period of 7 d. The number of bacteria was not influenced by the location of the plug within each cluster of plugs in the distribution system, or at different horizontal levels in the hot water tank after an exposure period of 7 d.

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