

## **Persistence of *Pseudomonas aeruginosa* in drinking-water biofilms on elastomeric material**

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Seeding experiments in flow-through reactors were performed to investigate the incorporation of the opportunistic pathogen *Pseudomonas aeruginosa* into drinking-water biofilms on ethylene propylene diene monomer (EPDM) rubber as an example of an elastomeric material with a tendency to support biofilm formation. The continuous flow of tap water through the reactor resulted in the formation of biofilms which were in a quasi-stationary state after 14 days with average total cell counts of approximately  $1.2 \times 10^9$  cells per  $\text{cm}^2$  and heterotrophic plate counts of about  $1.0 \times 10^8$  colony-forming units (cfu) per  $\text{cm}^2$ . After introduction of *P. aeruginosa*, these bacteria persisted in the drinking-water biofilms for at least 7 days and 5 weeks under stagnant and flow conditions, respectively. At the same time, *P. aeruginosa* was detected in the water phase, indicating detachment of cells from the biofilms. The extracellular polysaccharide alginate and cell-bound lectins LecA and LecB, which are known to be involved in monospecies *P. aeruginosa* biofilm formation, had no significant influence on the colonisation of established drinking-water biofilms. From a health perspective, drinking-water biofilms can thus act as a reservoir for *P. aeruginosa* and have to be considered as a source of contamination in water distribution systems.