



Executive summary

Introduction

The increase of bacterial number in drinking water due to bacteria multiplication in distribution networks creates a number of problems including loss of residual chlorine, development of larger animals in the pipes, growth of coliforms and opportunistic bacteria in drinking water. Because the bacterial growth is dependent on many interrelated parameters the prediction location and severity of the regrowth using analytical methods is not always possible. For this the mathematical modelling could be used. The aim of this deliverable is to critically review available mathematical models of bacterial regrowth and to propose the conceptual model that will be developed further in the TECHNEAU project.

Importance

The existing mathematical models are reviewed and a new model of bacterial growth in water distribution system is presented. The model could be used to evaluate the regrowth potential of parts or entire water distribution networks, thus allowing planning actions for reducing the problems resulting from regrowth (high HPC) and occurrence of coliforms in water.

Approach

Based on literature review and laboratory scale experiments the mathematical model was developed. The model is developed in FORTRAN code and outputs of model are obtained in EXCEL sheets.

Result

The conceptual model was developed and tested in pilot scale. The results of the simulation of model were in agreement with major processes occurring in the distribution networks as their are described in the literature.

More information

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