Automation of DNA based (qPCR) microbial analytics in industrial processes – Novel approach for industrial microbiology

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Quantification of bacteria from industrial processes is traditionally based on conventional cultivation methods involving long incubation steps and necessity of human resources for naked-eye type result counting. This work aimed at the design and validation of automated DNA extraction and qPCR analysis for accurate and rapid quantification of bacteria from process environments e.g. board machines to replace traditional methods. The work resulted in a database and calculation platforms for microbiological management of packaging board process. The combination of process data and microbial analysis from the database has proven to target biocides and to show possibilities to reduce machine downtime with beneficial cost effects. Overall, the work reported here serves Stora Enso’s novel Microbial Management Program (MMP).

Biography

Mr. Riihinen has completed his Honors degree from the University of Teesside, UK. He is the Chief Operating Officer of Industrial Water Ltd and a collaborating scientist with Finnish paper and board company Stora Enso. Industrial Water is a clean-tech company for water treatment, including assessment of water quality in different phases of water cycle from drinking water to waste water. Industrial Water serves Finnish process industry in all aspects of process waters quality issues. After completion of his studies Mr. Riihinen has worked for a decade towards rapid DNA based methods for the quantification of bacteria from industrial environments.

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