

Abstract:

This paper presents an algorithm for estimation of respiration and fermentation rates in CA-stores under normal operation, which can be used for:

- Monitoring the product state
- Control of respiration and fermentation rates
- Detection of anaerobic conditions

All published estimation methods require either a steady state flow-through or a batch respiration chamber. For implementation in full-scale storage facilities the estimator must be able to handle both situations and especially the more difficult non-steady state flow-through condition. To our knowledge, the only attention for monitoring respiration rate in full-scale storage facilities is a proposal by Janssens et al. (1995). In this study a Kalman Filter is designed to estimate the respiration and fermentation rates recursively. The results are compared to calculated respiration and fermentation rates. The rates of respiration and fermentation estimated from the O₂ and CO₂-balances converge to their calculated values. Experiments are currently carried out and results will come available in the oncoming months.