Accepted Manuscript

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PII: S1369-703X(18)30321-8
DOI: https://doi.org/10.1016/j.bej.2018.09.010
Reference: BEJ 7039

To appear in: *Biochemical Engineering Journal*

Received date: 4-6-2018
Revised date: 15-8-2018
Accepted date: 9-9-2018

Please cite this article as: Wang X, Bai X, Li Z, Zhou X, Cheng S, Sun J, Liu T, Evaluation of artificial neural network models for online monitoring of alkalinity in anaerobic co-digestion system, *Biochemical Engineering Journal* (2018), https://doi.org/10.1016/j.bej.2018.09.010

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ACCEPTED MANUSCRIPT

Evaluation of artificial neural network models for online monitoring of alkalinity in anaerobic co-digestion system

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Highlights

- Software sensor method was studied for alkalinity online monitoring.
- The inputs could be monitored online and have vital relationships with alkalinity.
- pH, ORP, and EC were selected as the inputs in alkalinity prediction model.
- Optimal artificial neural network model was 3-2-1 structure with the R^2 of 0.9948.
- ORP was the most significant model factor with the highest sensitivity degree.

Abstract

Compared to pH monitoring during the anaerobic digestion process, alkalinity as an indicator could provide earlier warning for instability of digestion process, which is very important for efficient operation of biogas digesters, especially for multiple feeding substances. However, the online monitoring of alkalinity is still unavailable

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