LUNDS UNIVERSITET
Lunds Tekniska Högskola

Division of Industrial Electrical Engineering and Automation (IEA)
Department of Biomedical Engineering

Physico-chemical modelling implementation in ADM1

30 December 2014

Agreement with Lund University (LU), Technical University of Denmark (DTU), University of Queensland (UQ) and Ghent University (UGent)

Dear Colleague,

The physicochemical modelling implementation in ADM1 within the BSM2 platform you have just received represent the implementations from LU, DTU, UQ and UGent. The work has been mainly carried out by Xavier Flores-Alsina, Damien Batstone and Kimberly Solon.

The models are available for the Matlab®/Simulink® platform and have been written in C (incorporated into Simulink as C Mex S-functions). You need to compile the C-files for your own processor/computer (use the `mex` command within Matlab, the internal compiler will work fine). We have used Matlab release 2013b but the models will also work fine on later releases.

The models include corrections for ionic strength and ion pairing effects, the details of which can be found in Solon *et al*., 2015. Specifically, the implementations are made to fit into the framework of the Benchmark Simulation Models, which is currently being developed by the IWA Task Group on Benchmarking of Control Strategies for WWTPs. This also means that some details of the current implementation may still change as the development of the benchmark continues. Gradually, detailed information concerning the work of the Task Group will become available on www. benchmarkwwtp.org. The work carried out also fits within the framework of the IWA Task Group for Physico-chemical Modelling.

In principle, we provide these implementations for free in a true academic spirit and can therefore not offer any traditional support. You may contact us to discuss various aspects of the models, but we do not guarantee that we can find time to assist you. However, we do ask you to:

- **Send us feedback** in case you find errors or possible improvements to the implementations or if you come across operational situations where any of the implementations behave differently or strangely compared to others;
- **Send us copies of scientific papers** you write, which are to some extent based on the use of any of these model implementations;
- **Please acknowledge the work that has been carried out by us** in any papers you publish where the use of our model implementations have had an impact.

We hope that you will enjoy and benefit from the use of these models and also that it may lead to more scientific collaboration between our groups in the future. You are always welcome to contact us on such matters.

Sincerely,

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Reference:

Solon, K., Flores-Alsina, X., Kazadi-Mbamba, C., Volcke, E.I.P. Tait, S., Batstone, D., Gernaey, K.V., Jeppsson, U. (2015), "Effects of ion strength and ion pairing on (plant-wide) modelling of anaerobic digestion processes". *Water Research*, vol. 70, pp. 235-245.

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