

EM2a Simulator for MATLAB/Simulink

WP 6, Partner UNAM

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This package contains a MATLAB/Simulink model implementation of the model EM2a as reported by WP 2. It also contains some measurement data from experiments conducted and reported by WP1, Partner POLIMI.

The simulator model can be used either with graphical user interface (with Simulink) or programmatically (from the Matlab shell, scripts or functions). An example for the latter is included, that calculates the cumulative error of simulation versus measurement data points (of specimen concentrations; C, N, NH₄, NO₃, NO₂).

The package is encapsulated within a directory, that needs to be placed into the actual path or used as current directory. Help is available for the package (`help package`) and for each included script and function.

Package File Description:

`xxxxxx_measurements.csv`

(Concentration measurements for specific experiment in CSV format)

`package.m`

(Package help, use `help package`)

`em2a.mdl`

(Simulink Model of EM2a)

`simulateEM2a.m`

(Matlab function running a simulation of the simulink model from MATLAB context)

`calculateModelError.m`

(Calculates the cumulative normalized error between simulated and measured values)

`mua1.m`

`mua2.m`

`muh.m`

`muh1.m`

`muh2.m`

(Matlab functions for the kinetic expressions of the EM2a model)

`runErrorAnalysis.m`

(Script running the error analysis, simulating the eleven included experiments.)

References:

Fibrianto, H. and Dochain, D. (2004): "WP2 – Model Selection and Parameter Identification: EM2 Associated to C/N Removal Processes".

Betancour, M. and Fibrianto H. and Dochain, D. (2004): "WP 2 : Model Selection and Parameter Identification: Deliverable 2.3 -Validated Model".