

PeakMaster 5.3 Complex - Instructions

New complexation mode of the Peakmaster 5.3 enables to calculate effective mobility of analyte and quantitative parameters of electromigration dispersion of analyte peaks in systems with complex forming agent (ligand). Current version is applicable for separation systems with 2 BGE constituents, one neutral ligand and one fully charged analyte. Only analyte is supposed to complex with the ligand in the ratio 1:1. The following text describes the setup of calculations using the Complexation mode of PeakMaster 5.3. The general setup is the same as in the previous version of PeakMaster 5.3, therefore the following text is focused only on the complexation modul.

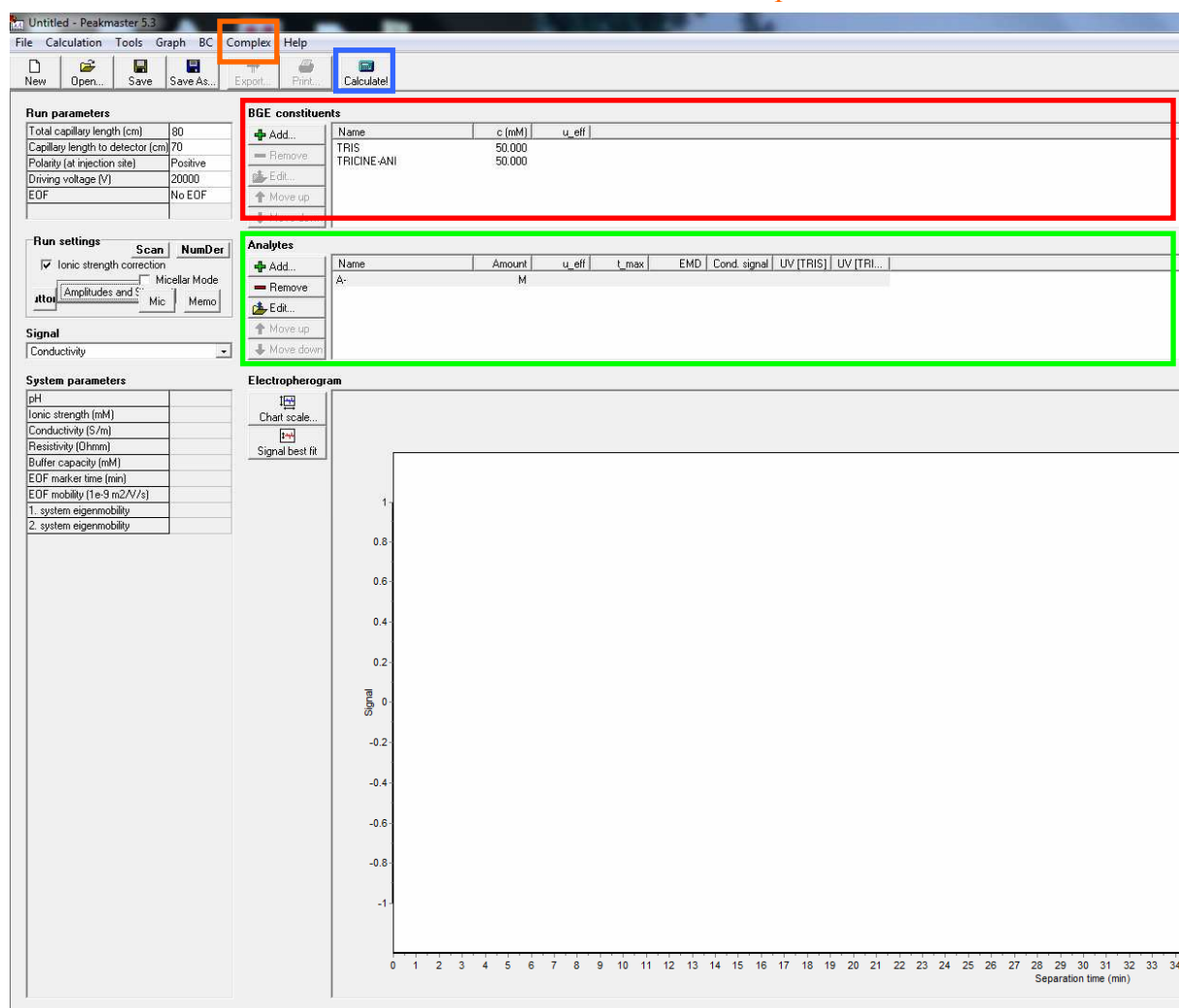
1. BGE constituents

The complexation mode requires only TWO constituents of BGE.

2. Analytes

The complexation mode requires only ONE analyte, fully dissociated to its highest charge number at actual pH.

Click on the "Calculate!" button and then on the button "Complex".



When clicking "Complex" button, the new window opens.

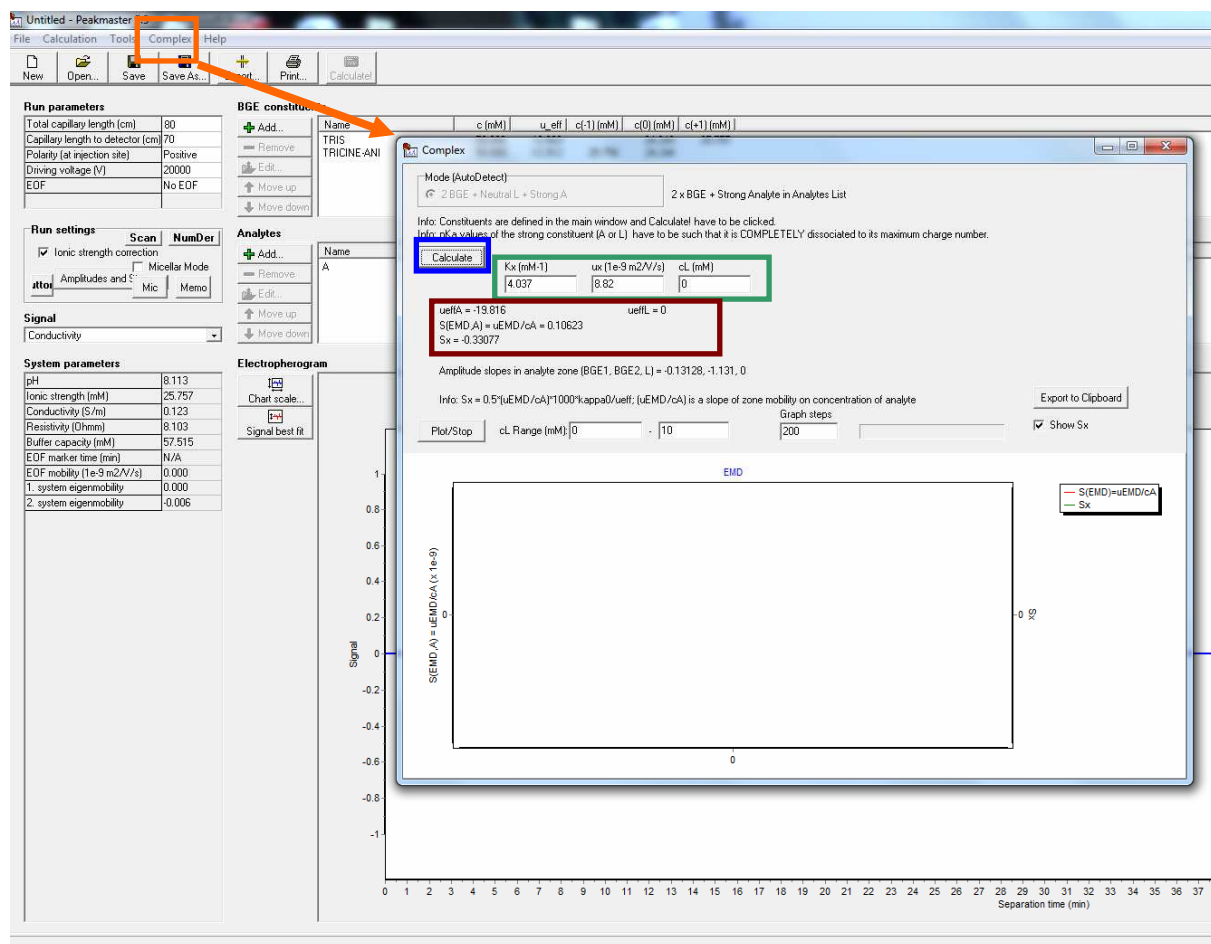
3. Complex forming parameters

Necessary input data:

- complexation constant " K_x [mM⁻¹]"
- mobility of complex " u_x [1e-9 m²/V/s]"
- concentration of ligand " c_L [mM]"

By clicking on button "Calculate!", the characteristics of system are calculated:

- effective mobility of analyte " $u_{eff,A}$ [1e-9 m²/V/s]"
- slope of nonlinear mobility of analyte zone " $S(EMD,A)$ " [1e-9 m⁵/v/s/mol]"
- relative velocity slope " S_x " [1e-3 m²/S/mol]"



The complexation mode of PeakMaster 5.3 enables depiction of dependences of S_x and $S(\text{EMD}, A)$ and ligand concentration:

set range of ligand concentration and graph steps

click "Plot/Stop" button.

By clicking on "Plot/Stop" button, the dependences are depicted in the window.

The dependences can be exported to other programs by the clicking on the button "Export to Clipboard".

