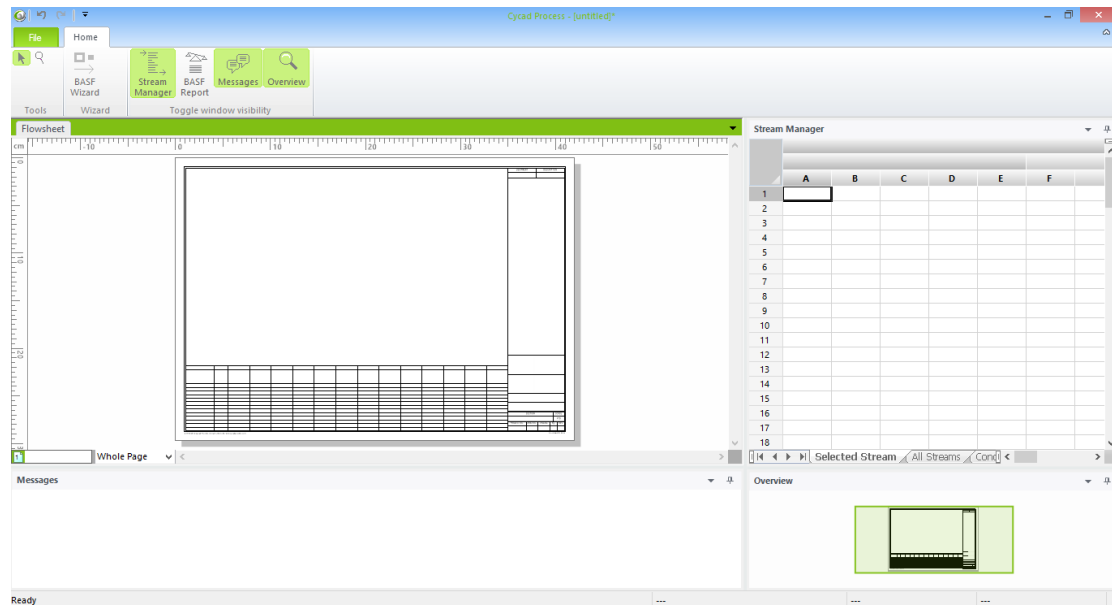
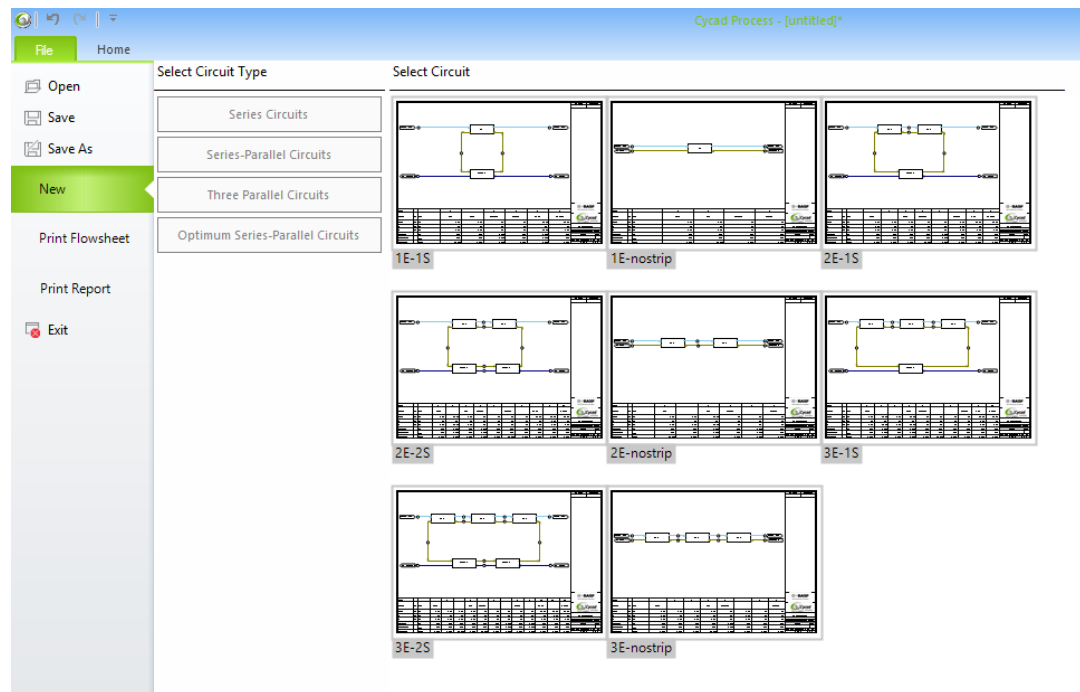


# Using BASF's Isocalc™

## 1. Start up Isocalc™ Powered by Cycad Process®



## 2. Click "File" at the top



## 3. Select the class of circuit you wish to model

- Series (1 PLS stream)
- Series-parallel (2 PLS streams)
- Three parallel (3 PLS stream)

d. Optimum series-parallel (2/3 PLS streams, interlaced extraction stages)

4. Double-click on the circuit configuration you wish to model

**Project Details**

Client: BASF

Project Name:

Project Description:

**Organic Selection**

Extractant: LIX984N

Extractant Concentration, %: 5

Diluent: Diluent

Modifier: None

Series O/A Ratio: 1.1000

**Isotherm Calculation Method**

Extraction Isotherm: Chemical Isotherm

Strip Isotherm: Chemical Isotherm

**Operating Temperatures**

Extraction Temperature, C: 25

Strip Temperature, C: 25

Buttons: Cancel, Next

Right Panel: Circuit Properties, Stage Efficiencies, Extraction Aqueous Set Up, Strip Electrolyte Set Up

5. Follow the steps of the steps in the wizard

a. Enter the circuit properties

b. The second page you set the extraction and stripping stage efficiencies

**Extraction Stages**

ES 1: 91.0000

ES 2: 93.0000

**Strip Stages**

STRIP 1: 98.0000

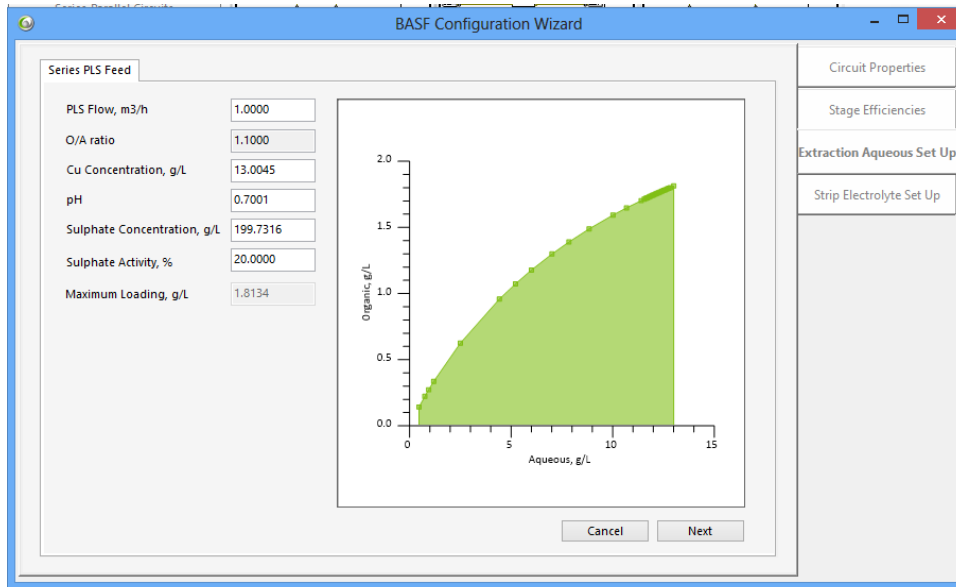
**What is Stage Efficiency**

Stage efficiency is a term which represents how close a particular theoretical stage gets to the theoretical equilibrium.

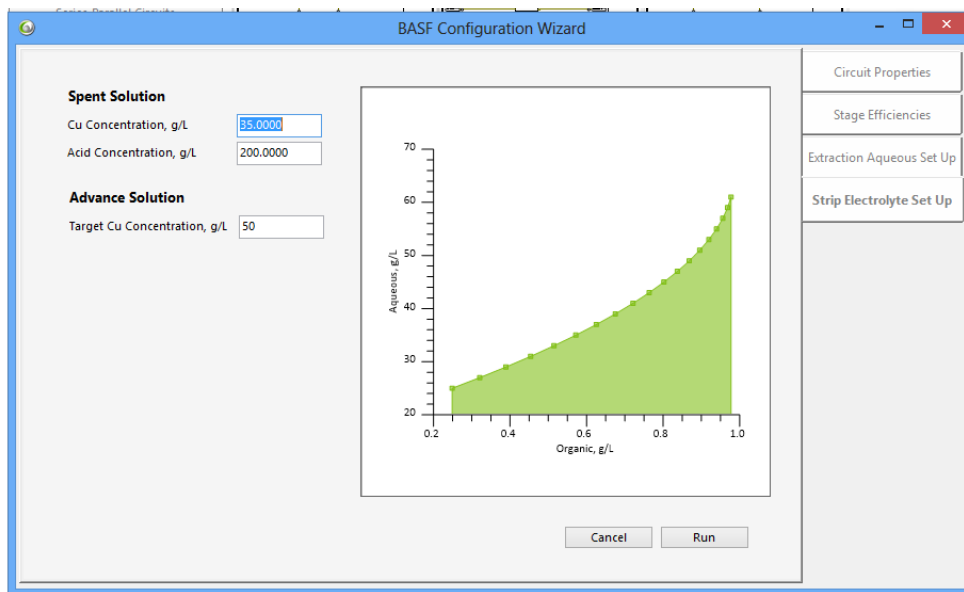
Buttons: Cancel, Next

Right Panel: Circuit Properties, Stage Efficiencies, Extraction Aqueous Set Up, Strip Electrolyte Set Up

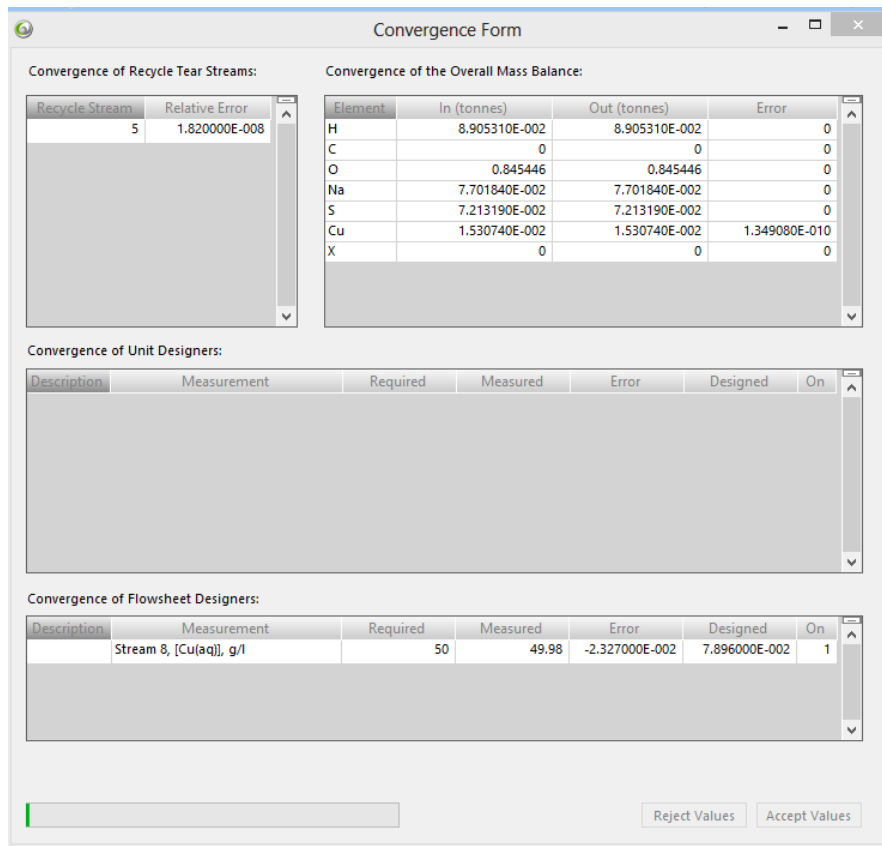
c. After stage efficiencies, configure the PLS stream(s). If you have more than 1 PLS stream then you must configure each stream before moving on. If they have the same composition then you can select the check-box telling Isocalc™ to make them all the same.



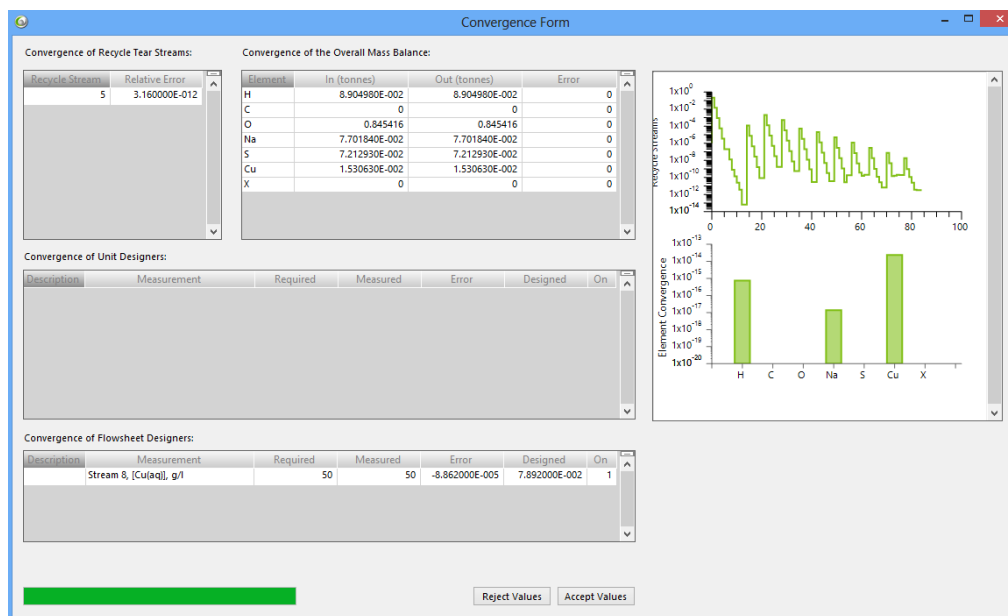
- d. After that, define the strip conditions. Here you must specify the spent copper concentration, the acid concentration and the exit copper concentration. Isocalc will determine the required spent flowrate to achieve the delta across the strip.



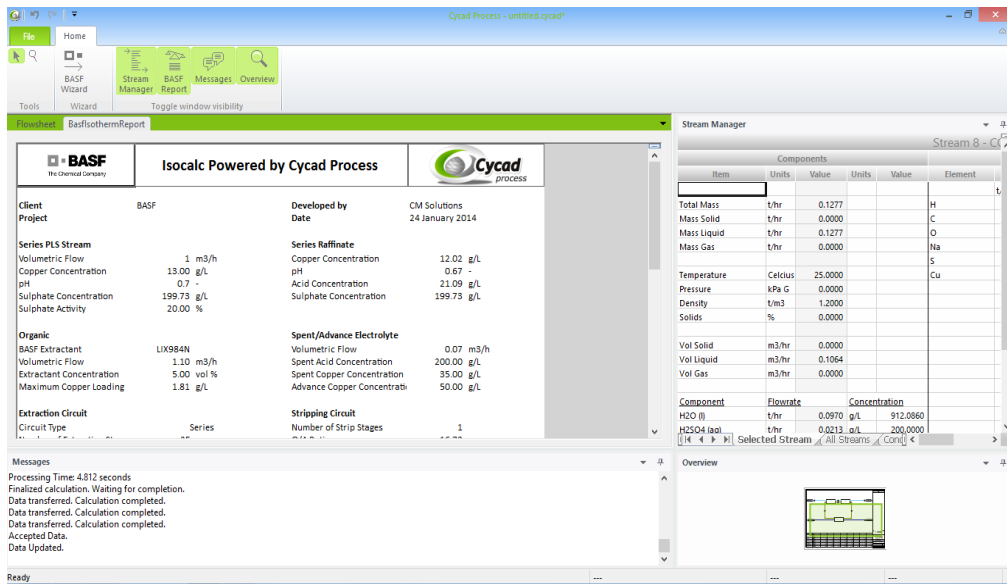
- e. Once this is complete you can "Run" the balance. The wizard will first configure the mass balance to the parameters you have specified and then calculated the closed mass balance for the specified circuit.



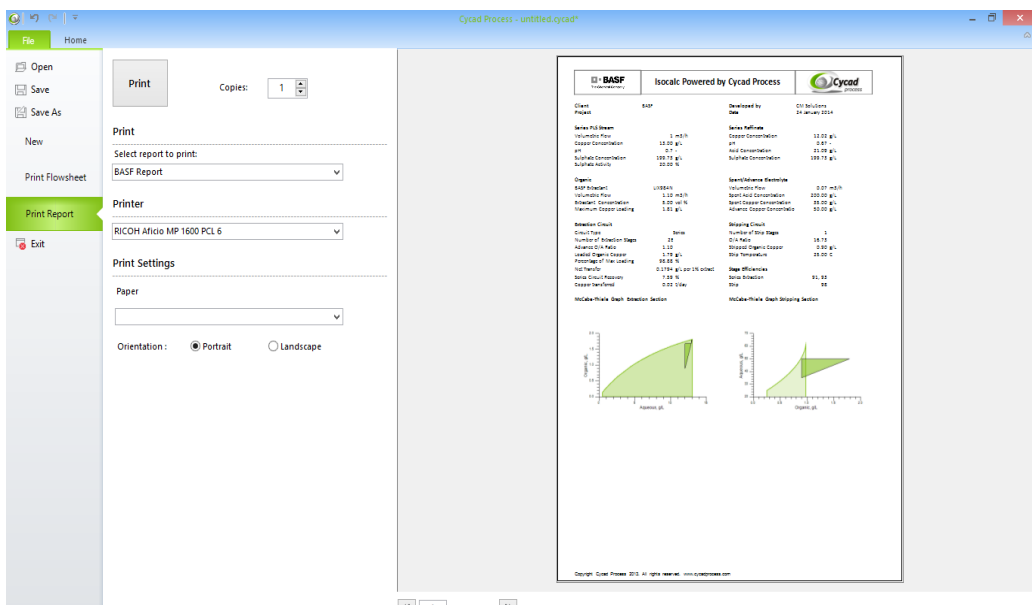
- f. During the calculation, the progress will be shown. Once the mass balance tolerances have been achieved the calculation will stop.



- g. After the calculation is complete, the user may decide to accept the results or reject them. Accepting the results will save them and allow the user to access/print a resulting report summarizing the circuit and calculation results.



- After accepting the results, a report is compiled summarizing the results. This report and the associated flowsheet can be printed by selecting "File" at the top left and then selecting "Print Report" or "Print Flowsheet".



- Finally, this data can also be exported to excel by right-clicking on the report and selecting "Export to Excel". The user can select a new file or append these results to an already existing xls file.