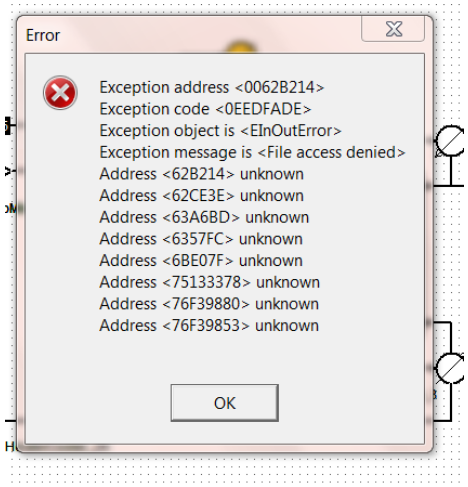
COFE/ChemSep Troubleshooting and "How-to" Guide

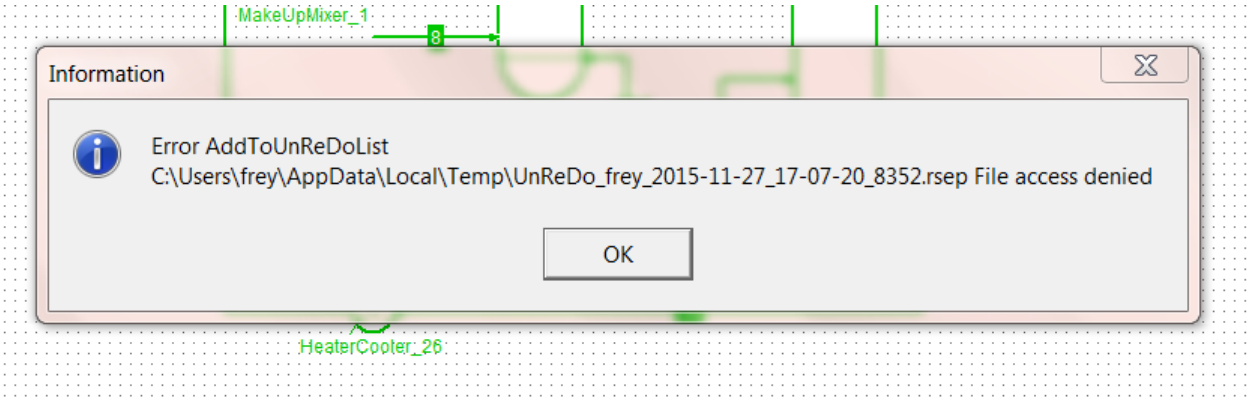
Troubleshooting tips:

1. The best way to open an existing *.fsd file (i.e., a COFE flow sheet document file) is to first start the COFE program and then let this program completely start up. Then, use the file/open menu in COFE to open the *.fsd file. If instead you try to open directly a *.fsd file by double clicking on it using, for example, Windows Explorer, it may open in a corrupted form, or it may not open at all depending on how COCO was initially installed.

2. When running a ChemSep simulation, you may encounter an error dialog box that appears as follows;



This "Exceptions" error is not a fatal error. You can just click on the "ok" button to continue. You may also need to click on the ok bottom on the following information box to continue a ChemSep simulation after the above "Exceptions" error occurs.

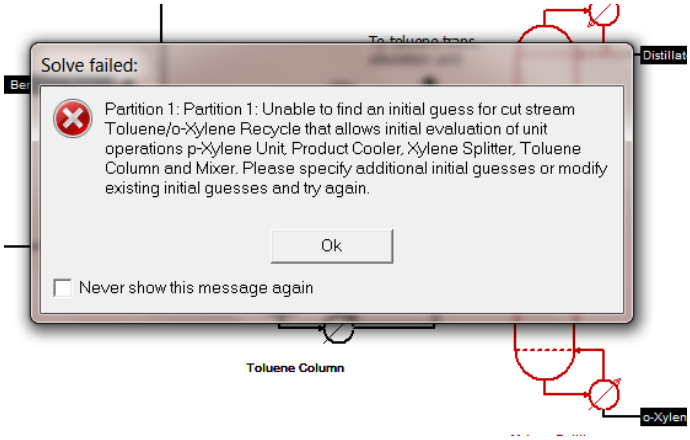


In some cases, rather than the direct appearance of the above error dialog box, it may happen that initially the ChemSep icon appears on the lower task bar as shown below:

When this happens, you need to first click on the ChemSep icon and then you will see the "Exceptions" error dialog box shown above.

Similarly, if any icons associated with COFE components appear (sometimes suddenly during a simulation) on the lower task bar, you may need to click on the icon and address an issue with the icon before you can continue with the simulation, or before you can continue using COFE.

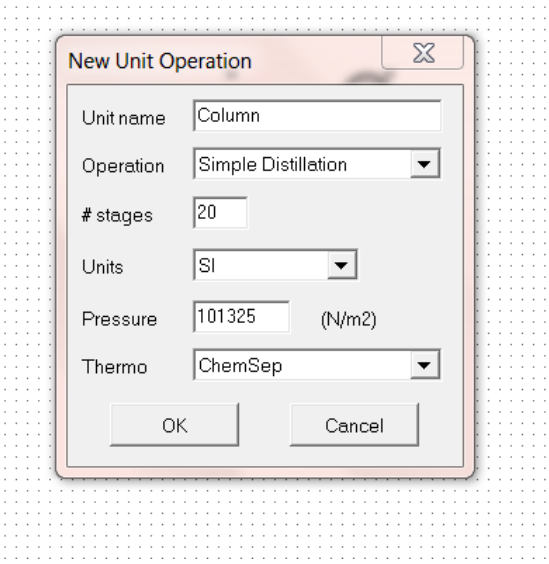
3. In flow sheets with a recycle stream, it is often the case that you may need to adjust the starting guess for the recycle stream composition, flow rate, pressure and temperature in order to achieve a solution for the entire flow sheet. You can do this by left clicking on the stream, and then right clicking on the Edit/view streams option in the resulting dialog box. In the resulting window that opens you can set variables as desired. Note that you sometimes need to do this even if the current starting guess for a recycle stream is the known final solution to the problem being solved. If you have trouble solving a flow sheet. In some cases COFE will recognize this situation and produce the following error dialog box:



4. If you create your own process unit (for example, using Excel) it may happen that some of the product streams that exit from your process are thermodynamically unstable. For example, you may by accident create a superheated liquid steam that would normally split into separate vapor and liquid streams that are in equilibrium. Or you may create a stream where the mole fractions do not add to unity. Or your process unit may violate a material or energy balance. These conditions may produce various types of warnings or even fatal error by COFE, so it is best to avoid them.

Helpful hints and "how-to" guide:

1. After you create a thermodynamic model (such as a particular gamma-phi model) for the entire flow sheet using the settings/flowsheet configurations node, you may need to create a different thermodynamic model for a particular process unit in your flow sheet. You can do this by first creating the desired process unit using the Create Unit Operation/Separators/ChemSep menu option. Then, after you create the unit operation icon in the flowsheet, right click on the unit operation icon and then left click on the "open GUI" option. When the "New Unit Operation" setup dialog box appears as shown below, change the Thermo option from "CAPE OPEN" to ChemSep. You will then be able to create a new thermodynamic model that applied just to the process being considered. This is commonly the case for a solvent extraction process where a gamma-gamma model of some type needs to be created that applies to the extraction process while a gamma-phi model of some type will apply to the remainder of the flow sheet.



2. In a flow sheet with one or more recycle streams, It is good practice to solve each process unit individually in a preliminary manner before you try to solve the entire flow sheet. You can solve an individual process unit using its current input streams by right clicking on the icon for that unit, and then left clicking on the "Calculate this unit" option. After solving all the process units this way, and after selecting a reasonable starting guess for the recycle streams as described in item 3 above, it is generally then easier to solve completely the entire flow sheet since you will have fairly good starting guesses for all the variables in the flow sheet.