

Simprosys 3.0

- Simprosys is a Windows-based process simulator for heat/mass/ pressure balance calculations for drying centered systems.
- Simprosys 3.0 can deal with 13 other gas-solvent systems in addition to air-water system.
- Simprosys 3.0 can model and simulate combustion drying.
- Simprosys 3.0 Includes calculations for 20 unit operations, one logical unit operation (recycle), and has two utilities (humidity chart and unit converter)
- Dryer model outputs specific heat consumption and thermal efficiency as part of simulation
- Can simulate any typical drying, evaporation process and combination thereof drying

For an Existing Drying System

- Measure process data such as material and air inlet/outlet temperatures, humidity etc.
- Create a dryer model in Simprosys and input process data into the dryer model
- Obtain specific heat consumption, thermal efficiency and exhaust air relative humidity in minutes
- Evaluate dryer efficiency, heat input and heat losses etc.
- Probe possible heat recovery by preheating fresh air with exhaust air; recycle etc.



Existing Drying System (2)

- Try different possible heat recovery strategies e. g. addition of heat exchanger and scrubber/ condenser
- Do parametric studies by changing fresh air inflow, air inlet temperature, dryer heat input, etc. and see how specific heat consumption, dryer thermal efficiency and exhaust air relative humidity are impacted
- Do parametric study by recycling different portions of exhaust air.
- Determine energy savings strategy based on Simprosys analysis and by taking into consideration drying kinetics which are affected by changes in process variables.



New Drying System

- Lay out drying flowsheet including pre and post processing operations
- Do heat/mass balance calculations of the whole drying system within about 20 minutes.
- Obtain important process parameters such as fuel gas flow rate, specific heat consumption, thermal efficiency and exhaust relative humidity, etc.
- Try different possible process parameter values such as fuel gas flow rate, air inlet temperatures, exhaust gas relative humidity to optimize energy efficiency of the whole process.
- Try different possible heat recovery strategies with different combinations of heat exchanger operations to optimize energy efficiency.



Combined Evaporation and Drying Process

- Lay out whole process based on design requirements or existing plant
- Probe multi-stage evaporation for a new design
- Try to use secondary steam from evaporator to heat fresh air to the dryer
- Try to make use heat of exhaust air and secondary steam from evaporator with different possible operations to optimize energy efficiency.



Simprosys-Simple to Learn and Easy to Use

- Needs almost no training
- With process data ready, it generally takes less 20 minutes to get the whole process simulated.
- It takes less than a couple of hours to do all possible parametric studies for the whole system including pre and post processing
- Weeks of analysis work can be carried out in hours.
- Can probe different possible combinations of unit operations to optimize process energy efficiency

