

**HIGHLIGHTS**

- ✓ In order to better serve customers and partners developing links between simulation and operating plant data, we have **added OPC DA 2.05a Server** capabilities to CHEMCAD. This interface allows CHEMCAD to not only exchange data, but also to be controlled (run: steady state or dynamic) by an OPC Client.
- ✓ We have **expanded the Electrolytes modeling capabilities**, including the ability to use the Pitzer and mNRTL models in the same flowsheet, additional data for DGA systems and NaClO<sub>3</sub> systems, calculation of electrolyte entropy, improved regression facilities, better non-charged species handling in true species mode, and added true species electrolyte mass transfer distillation to SCDS columns.
- ✓ For **improved distillation sequence planning**, we have added an option to combine the residue curve map and the binodal curve in a single plot.
- ✓ The **help system has received significant attention** to improve the usefulness of the help text, the ability to find references, and connect to Chemstations' website.
- ✓ We have made **K-value wizard selection easier** when using some components as utilities (Cooling Water, Steam, DOWTHERM, etc.) by allowing them to be excluded from the selection algorithm.
- ✓ **Reporting is improved** with the flexibility to create reports not only in WordPad, but also in Excel.
- ✓ The **PIPE unit operation has been enhanced** with the option to calculate heat transfer to air, water, soil, or user-defined environment with up to 6 layers of user definable insulation.
- ✓ We have **added improvements to the reactor models** including the option to minimize Gibbs free energy in an equilibrium reactor (EREA), an option to specify excess air as a lambda value in the Gibbs reactor (GIBS), and options in batch reactors (BREA) to report calculated reactor mass and use liquid static head in outlet flow calculations.
- ✓ To **improve fidelity of dynamic simulation** (to aid in on- and off-line projects), we have added holdup calculations for the PIPE, heat exchanger (HTXR), and kinetic reactor (KREA) unit operations.
- ✓ **Batch columns have been made more flexible**: the contents of the column and pot can now be drained to a tank at the end of an operating sequence, and we have added more flexibility for running single operation steps or specified ranges of operation steps.
- ✓ We have **improved user work flow when copying cases** and now allow dynamic simulations to be saved as cases.
- ✓ **SCDS column has been improved** with revisions that include display of calculated tolerance, specification of feed/draw rate, improved electrolyte convergence, and iterative rating mode for pressure drop.
- ✓ **We expanded air cooler models** so they can be used as heat recovery units (such as recuperators and economizers) by allowing two defined process streams, instead of the previous limitation of air only on one side of the air cooler.


**CHEMCAD SUITE**
**NEW FEATURES & ENHANCEMENTS**

1. Added True species mass transfer model for SCDS (149)
2. Added OPC Server and passed the certification tests for DA 2.05a (266 & 344)
3. Added a new stream property: Gibbs free energy (398)
4. Added the ability to use Pitzer and mNRTL electrolyte models in the same flowsheet (415)
5. Added combination Residue Curve/Binodal Plot for azeotropic distillation (70)
6. Added Electrolyte data for DGA/CO<sub>2</sub>/H<sub>2</sub>S/Water system (153)
7. Added a button to allow users to more rapidly view several components.
8. Added Excel as an option for all reports (33)
9. Added report on Results->thermodynamics of the user file paths so users know where their user and pool components are coming from (239)
10. Added calculation of electrolyte entropy (312)
11. Improved help menu text and added website links (173)
12. Added feature to retain selected component list when plotting component properties (159)
13. Added feature that allows plotting all components in list (160)
14. Added grams per liter report option (284)
15. Streamlined user interface on "Close all charts" (326)
16. Added component formula to component output report (201)
17. Added vertical separator option for Excel range in PFD (9)
18. Increased maximum datapoints in an electrolyte regression to 500 (291)
19. Added KJ/mol to specific enthalpy units (182)
20. Streamlined component editing for multiple components (158)
21. Added ability to copy a single case only (241)
22. Added the ability to select utility components on the K-Value Wizard Screen (23)
23. Improved regression for Vapor Pressure to allow E=1,2 or 6 per DIPPR procedures (81)
24. Added Data for NaClO<sub>3</sub> electrolytes (10)
25. Improved handling of non-charged electrolytes in component list when in true species mode (8)
26. Added sound feedback for visually impaired while drawing streams (67)

**MAINTENANCE**

27. Fixed an issue where delete job/case doesn't work for multiple jobs/cases (136)
28. Fixed an issue where CHEMCAD locks up when using PPAQ due to sparse component data (370)
29. Fixed an issue where CHEMCAD failed to find add-on licenses on a License Manager (434)
30. Fixed the hotkey underline conflict on the Thermophysical menu (461)
31. Fixed packing and sizing report format when sent to Excel (462)
32. Fixed issue with most recent file lists not updating(332)
33. Fixed an issue so that "Program directory" always refers to the directory where CC5.EXE resides (130)
34. Fixed case names for DoSpecSheet (331)
35. Fix-for electrolytes, "STDL" now looks at the actual stream density at 60F (322)
36. Removed limit on number of instances allowed on a given PC (290)
37. Improved license checkout logic, program will try to check out sub-licenses when needed (230)
38. Fixed an issue in the apparent species electrolyte flash algorithm. (254)
39. Fixed issue where closing a simulation did not close all files(135)
40. Fixed issue where Visual Basic command "LoadJob" always returned true (138)
41. Fixed issue where text reports would sometimes show quickview results (193)
42. Fixed round off error in volume conversions to English units; relative change is approx 0.007%- 0.06% (273)



## CHEMCAD SUITE – Version 5.6 New Features

43. Fixed issue where Quickview window is sometimes obscured by toolbar (283)
44. Synchronized stream labels in simulation and flowsheet modes (345)
45. Fixed an issue when plotting components 268 and 919 TPXY (321)
46. Fixed an issue when copying a case in a multiple case simulation renames the wrong case (241)
47. Fixed an issue with Liquid Conductivity Regression data storage (73)
48. Fixed an issue with density for electrolyte streams in true species mode (11)
49. Improved ability to turn off electrolytes when species list cleared (79)
50. Fixed an issue with Job Export command and job names with periods (139)
51. Fixed an issue where Wordpad was pointing to the wrong directory and displays an error when getting CHEMCAD results (179)
52. Improved SuperPro-Net performance on larger networks (310)

### CC-STEADY STATE

#### NEW FEATURES & ENHANCEMENTS

1. New pipe heat transfer option for pipe unit operations (172)
2. Added a mode for 'Gibbs free energy minimization' to the EREA (361)
3. Users can now enter a pressure drop rating mode in SCDS distillation columns, where the pressure drops are solved iteratively with the heat /material balance (205)
4. Added ability to set excess air in Gibbs via lambda (276)
5. Increased number of recycle iterations max from 32000 to 2147494680 (487)
6. Added new feature that allows multiple streams to have line sizes done at same time (195)
7. Streamlined user interface for copying streams from another job (233)
8. Streamlined user interface for EREA reaction conversion (216)
9. Added Feed/Draw rate specification for SCDS (203)
10. Improved SCDS convergence with electrolyte systems (301)
11. Added liquid loading in gpm to packing sizing report (132)
12. Added Ideal Cp/Cv Polytropic Expansion model to expanders (285)
13. Added SREF and CONT source data to Quickview (213)
14. Added "Calculated Tolerance" values to SCDS calculated results (62)
15. Added ability to save/open multiple optimization and reconciliation files (207)
16. Added VB interfaces to Optimization and Data Reconciliation runs (328)
17. Improved HTXR dialog to show U and A as a single specification (142)

#### MAINTENANCE

18. Fixed mass transfer issue for non-condensibles (302)
19. Reinstated error messages on feed trays if feed tray locations not specified (303)
20. Fixed issue where pH would not appear for a stream copied from a SCDS stream reference (171)
21. Fixed issue with crystallizer predicting complete crystallization for soluble component (258)
22. Fixed issue with Compressors and multiple speed lines (347)
23. Fixed interface for mixer in simultaneous modular mode (287)
24. Fixed an issue with closed loop simulations in simultaneous mode (288)
25. Fixed an issue where running cost estimation re-sizes a flash vessel (187)
26. Fixed an issue where the FLASH icons #4 and 6 had incorrect stream assignments (194)
27. Fixed issues with LLV sizing when using local K-Values (133 & 218)
28. Fixed an issue where undo during flowsheet editing would decouple streams (324)

**CC-DYNAMICS****NEW FEATURES & ENHANCEMENTS**

1. Improved performance, speed of simulation increases by 25-50% (313)
2. Added holdup option for PIPE unit operations (264)
3. Added holdup option for HTXR unit operations (275)
4. Added holdup option for KREA unit operations (275)
5. Added an option to include static head in liquid outlet of BREA (426)
6. Added ability to run multiple cases within the same job directory in dynamic mode; previously limited to only one dynamic case per directory (447)
7. Added option to tab through runtime plots by using the F4 key (147)
8. Added option to specify component mass per volume for PID controller (191)
9. Added reporting of reactor mass (298)
10. Added ability for Compressors upstream of DVSL (246)
11. Improved CVAL interface (53)
12. Added Min/Max Valve position for CVAL (53)
13. Improved PIDC interface (460)

**MAINTENANCE**

14. Added warnings for when CONT units are disabled when using sequential mode (296)
15. Fixed an issue with multiple operation steps using elapsed time (131)
16. Fixed issue that allowed component editing during dynamic simulation (129)
17. Fixed an issue where restoring to initial state would not clear warnings and errors (255)
18. Added a warning message if the user tries to use multiple DVSL's as flow-scalars without nodes (237)
19. Fixed error checking if user selects "Run from Time Zero" more than once (250)
20. Fixed an issue with DVSL giving incorrect results for 0 psig (134)
21. Fixed an issue with BREA giving different results in simultaneous modular vs. sequential modular modes related to utility stream initial conditions (374)
22. Fixed an issue with DVSL: static head is now included when running in steady state mode (424)
23. Added phase model modes to CVAL: determined by program, non-flashing liquid, and all vapor to avoid errors caused by round-off (455)
24. Fixed user warning when flow is too large for a CVAL (458)
25. Fixed an issue with delete not removing saved snapshot info (217)
26. Fixed an issue when using multiple time steps in dynamics in conjunction with "Run from current state" (131)

**CC-THERM****NEW FEATURES & ENHANCEMENTS**

1. Added two stream air cooler to model other finned tube exchangers such as economizers, etc. (127)
2. Added a new method for wet wall condensation that compares wall temperature to the dew point of the fluid (388)
3. Increased maximum upper tube length for design mode to 60 feet (54)
4. Excel Reports now shows tube roughness (64)
5. Added TEMA calculation for mean metal temperatures (369)
6. Added visual basic interface to Fouling factors (215)

**MAINTENANCE**

7. Fixed an issue where liquid density value would get corrupted after zone-by zone analysis (293)
8. Fixed an issue with Air cooler tip speed calculation (223)
9. Fixed an issue with the reported LMTD correction factor in CCTHERM Simulation Mode (47)



## CHEMCAD SUITE – Version 5.6 New Features

10. Fixed an issue when using Knock-back condensation and Bubble/Dew heat curve cutting option (175)
11. Changed program to check unsupported tube span against TEMA RCB-4.xx (260 & 263)
12. Fixed input data check for plate exchangers to warn user if simulation data has changed (353)
13. Fixed units of measure for fan diameter in air coolers (391)
14. Fixed an issue where hot side 'h' was ignored for plate exchangers (429)

### CC-BATCH

#### NEW FEATURES & ENHANCEMENTS

1. Added ability to run only certain operation steps or series of steps (208)
2. Added ability to specify different efficiency and holdup profiles for each operation step (209)
3. Added ability to drain holdup and bottom contents to a tank at the end of the last operation step (210)
4. Users can now enter a pressure drop rating mode in CC-BATCH distillation columns, where the pressure drops are solved iteratively with the heat /material balance (205)

### CC-RECON

#### NEW FEATURES & ENHANCEMENTS

1. Improved ability to do Reconciliation and Parameter estimation simultaneously (219)
2. Added ability to save/open multiple optimization and reconciliation files (207)
3. Added VB interfaces to Optimization and Data Reconciliation runs (328)

\*Numbers in parentheses are internal tracking codes