



CHEMCAD

CC-STEADY STATE +
CC-DYNAMICS +
CC-BATCH +
CC-THERM +
CC-SAFETY NET +
CC-FLASH +

Engineering advanced

rev. 150611

CHEMCAD 6.4 RELEASE NOTES

Version 6.4 Highlights

- ✓ State-of-the-art licensing tool, RMS License Manager, which expands CHEMCAD's commuter licensing capabilities

- ✓ New Thermo Acceleration operating mode, which can help speed calculations for complex simulations

- ✓ Improved dynamic column performance

- ✓ Enhanced user-defined component database, which enables users to specify electrolyte density, viscosity, diffusivity, Henry's constants, and BIPs

- ✓ BIP regression from partial pressure data

- ✓ Improved convergence for multiple solid electrolyte systems

- ✓ Capability for simultaneous heat transfer and mass transfer models in distillation columns

- ✓ Capability to run Excel Data Maps for each time step in dynamics mode

- ✓ New section on the Topology Report that lists stream and UnitOp relationships, such as controllers, stream references, streams copied from another flowsheet, and META units

- ✓ Improved convergence for node flowsheets where some UnitOps are near critical flow





CHEMCAD New Features and Enhancements

- **Replaced License Manager 7.2 with RMS License Manager (3364)**
- **Added the capability to use commuter licensing from non-administrator accounts with RMS (2262)**
- **Added a new operating mode, Thermo Acceleration, which can decrease calculation time for complex simulations (2841)**
- **Improved convergence for multiple solid electrolyte systems (3351)**
- **Added the capability to enter electrolyte density, viscosity, diffusivity, Henry's constants, and BIPs to a user database (2821/2846/2847/2848/2849)**
- **Improved reporting of critical flow errors in piping networks (3121)**
- **Added the capability to select an equation of state for use with Poynting factor (3151)**
- **Added the capability for simultaneous heat transfer and mass transfer models in distillation columns (3610)**
- **Added the capability to regress BIPs from partial pressure data (3306)**
- Added a section to the Topology Report that lists stream and UnitOp relationships (such as controllers, stream references, streams copied from another flowsheet, or META units) (244)
- Revised Henry's constant coefficients for chlorine (888)
- Added the capability to specify which reaction(s) are deleted for reactor UnitOps (1456)
- Improved flowsheet error detection to reduce the incidence of duplicate stream ID errors (1924)
- Improved the Compressor UnitOp so that the Pressure Out field is cleared when not needed (2139)
- Added new BIPs for the water-HBr-bromine electrolyte system (2529/2530)
- Improved the default class selection during creation of a new user-defined electrolyte component (2862)
- Added the capability to perform an administrative installation of CHEMCAD from an .msi file (2967)
- Added a warning for the Compressor UnitOp if inlet or outlet vapor fraction is less than 1 (2983)
- Improved convergence for node flowsheets where some UnitOps are near critical flow (3014)
- Added an option to use the European standard symbol for the Pump UnitOp (3185)
- Enhanced VBClient.xls to enable reporting of unconverged UnitOps (3209)
- Revised ideal gas enthalpy for new components using the Joback method (3213)
- Improved electrolyte regression for CaCl₂ systems (3230)
- Added a unit label to the Sherwood-Eckert packing factor in column sizing (3294)
- Enhanced stream properties to allow calculation of entropy for a solid (3312)
- Enhanced the CHEMCAD Hydrates tool to enable users to enter a temperature or pressure range and create plots (3339)
- Enhanced the CHEMCAD Explorer so that stream numbers are still displayed, even after streams are named (3353)
- Added a 'Liquid & Solid' section to the Tray Properties report (3389)
- Improved the Kinetic Reactor UnitOp by adding the capability for solid-gas reactions (3400)
- Added the capability to set global stream and UnitOp starting ID numbers (3411)
- Added the capability to set display preferences for the Run Trace window (3412)
- Added the capability to set a keyboard shortcut for drawing streams (3414)
- Changed the behavior of the TP Box so that the default selection is Select Streams, rather than All Streams (3477)
- Changed the TP Box feature so that it displays a negative sign to indicate reverse flow when present (3478)
- Added BWRS BIPs to the Thermodynamics report (3523)
- Added a new and improved OTS amine simulation to the CHEMCAD example library (3570)
- Added warnings to costing algorithms to alert users of unusually large or small equipment (3574)



CHEMCAD New Features and Enhancements, continued

- Added the capability to create a keyboard shortcut for the Change Stream ID command (3614)
- Added 56 liquid-liquid equilibrium BIPs to the CHEMCAD database (2590)
- Improved the heat curve algorithm for bubble-dewpoint systems (2758)

CHEMCAD Maintenance

- **Corrected an issue with dynamic simulations saved in an elapsed-time condition (3080)**
- **Corrected a problem where user-edited equation-of-state BIPs were not used (3110/3119)**
- Removed duplicate entries from CHEMCAD component databases (1081/2132)
- Corrected an issue where '%' in stream name caused problems with simulation (2252)
- Corrected an issue with the Symbol Editor utility displaying a failed registry message (2905)
- Added missing PRSV BIPs to the component database (3010)
- Corrected an issue where adding system BIPs using the Select Database BIP dialog box did not prompt for reflash (3128)
- Corrected an issue where flowsheet time units could interfere with reactive distillation (3147)
- Corrected an issue with SCDS not supporting electrolyte (true species) reactions in mole fraction bases (3153)
- Corrected an issue where running an SCDS column using condenser mode 9 (*Two components molar flow ratio*) could cause CHEMCAD to close unexpectedly (3160)
- Corrected a minor issue with air cooler mean temperature difference calculation (3196)
- Corrected the use of SRK BIPs for component pairs in MSRK simulations with user-added MSRK BIPs (3220)
- Corrected an issue with the META UnitOp (3222)
- Corrected an issue with the Close All Charts command leaving equilateral triangle charts open (3296)
- Corrected an issue with stream templates that were created in CHEMCAD 6.2 (3303)
- Corrected a rare issue that could cause CHEMCAD to stall during launch while initializing VBA (3346)
- Corrected an issue with the heating value for solid components (3401)
- Corrected an issue where CHEMCAD could incorrectly calculate a vapor fraction of 0 above its critical temperature for a component with a Henry's constant (3434)
- Corrected an issue with CHEMCAD automation menu.xla for 64-bit Office 2010 (3437)
- Corrected an issue with the Spec Sheet report so that streams numbered higher than 255 are included (3485)
- Corrected an issue with the Kirkbride equation in the shortcut column UnitOp (3501)
- Corrected an issue where a clean installation of version 6.3.2.4358 could give error 429, affecting Excel automation (resolved with release of version 6.3.2.4389) (3520)
- Corrected an issue where, in some cases, a plate heat exchanger would not report a failure to converge (3531)
- Corrected an issue which, in rare circumstances, could cause a very large flowsheet to close unexpectedly (3567)
- Corrected an issue with the Mixer electrolyte option where a mixer could in rare circumstances be out of mass balance without a warning (3711)
- Corrected an issue where running a simulation from the COM interface could disable user interaction (3739)
- Corrected the UNIFAC subgroup for 4-Hydroxyacetophenone in the CHEMCAD component database (3751)
- Corrected an issue where CHEMCAD could unexpectedly close upon use of a VBA electrolyte mixing rule (3758)
- Corrected the plotting of heat curves using the global thermo model in place of a specified local thermo model (3762)
- Corrected an issue where standard heat capacity and Henry's constants entered during electrolyte component creation were not saved (3784)



CHEMCAD Maintenance, continued

- Corrected an issue where editing intermediate streams could cause inconsistencies in electrolyte true species simulations (3817)
- Corrected a unit conversion error that could occur when recording solid heat capacity in a sensitivity study (3824)

CC-THERM

- **Improved zone temperature calculation for horizontal tube-side condensation with shell-side evaporation (3468)**
- Added a new configuration option, with two inlets and one outlet, to the J (divided flow) shell model (1636)
- Corrected an issue where the Heat Capacity unit label was incorrectly displayed on the Excel report viewer (2783)
- Added the Reynolds number for shell-side stream analysis and Kern method to CC-THERM reports (2952)
- Corrected an issue with calculation of number of tubes for a kettle reboiler based on shell diameter (2995)
- Added new options to the Nozzle dialog for an X-shell with a three-nozzle connection (3015)
- Corrected an issue where outlet stream conditions failed to update for a one-sided heat exchanger (3127)
- Corrected an issue with calculation of tube-side heat transfer coefficient for laminar flow with VDI Nusselt Number Correlation selected (3141)
- Corrected tube count for no-tube-in-window baffle case (3238)
- Corrected an issue where a superheated vapor error message could prevent running a knockback condenser (3265)
- Corrected an issue where an error message prevented CC-THERM from running a heat exchanger with liquid-stratified sub-cooling flow (3302)
- Added the capability to access fouling factors from Excel Data Maps, controllers, sensitivity studies, etc. (3309)
- Corrected an issue with large static head triggering a message about inadequate driving force (3338)
- Changed the default value for the outlet mole vapor fraction in the Thermosiphon Reboiler specification dialog (3342)
- Added protection for heat curve generation when relevant physical property data is undefined (3348)
- Corrected an issue with TEMA sheet reporting the wrong flow for knockback condensers in some circumstances (3403)
- Added a new convergence method and algorithm for CC-THERM stream analysis case (3445)
- Corrected an issue where selection of TEMA B, TEMA C, or ASME class for a shell-side single- or two-phase exchanger with Bell-Delaware method resulted in an incorrect pressure drop calculation (3559)
- Added a pressure drop calculation for multiple inlet and outlet nozzles in an air cooler (3591)
- Corrected an issue with conversion between diameter and area baffle cut percentages (3642)

CC-DYNAMICS

- **Improved dynamic column performance (3565)**
- Corrected an issue with BREA 'KREA file not found' message for zero reactions (1235)
- Added the capability to run Excel Data Maps for each time step in dynamics mode (1444)
- Added warnings for PID controller measured variable outside min/max range (3210)
- Added a new and improved OTS amine simulation to the CHEMCAD example library (3570)

CC-BATCH

- Corrected an issue where pot charge could be deleted as a result of inserting a new first step for Batch Column (2453)
- Improved convergence of batch distillation using SCDS method (3212)