

CHEMCAD's extensive library of chemical data, formulae, and methods is benchmarked against real-world data and industry standards to provide users with the latest information they need to do their jobs. For this reason, new features are added to CHEMCAD on a regular basis.

CHEMCAD VERSION 6.3

Major enhancements of version 6.3 over version 6.2 include:

- Capacity to handle 2000 discrete components in a single simulation
- Improved convergence via a new recycle cut stream algorithm
- Optional user-defined enhancement factor for mass transfer
- Enhanced composite curve plots that allow users to set minimum delta T
- Numerous enhancements to the CC-THERM heat exchanger sizing module
- Capability to load multiple instances of CHEMCAD via COM
- Improvements to CHEMCAD's OPC functionality, including increased speed
- Increased calculation speed for local thermodynamics
- Capability for network administrators to perform silent CHEMCAD installation

VERSION 6.3.2.4389 RELEASE NOTES

CHEMCAD New Features and Enhancements

- Added a new operating mode, TurboK, which can decrease calculation time for complex simulations (2841)
- Replaced License Manager 7.2 with RMS License Manager (see important upgrade message) (3364)
- Added the capability to use commuter licensing from non-administrator accounts with RMS (2262)
- Added the capability to select equation of state for use with Poynting factor (3151)
- Added the capability to regress BIPs from partial pressure data (3306)
- Added the capability to set a keyboard shortcut for drawing streams (3414)
- Improved KREA with capability for solid-gas reactions (3400)
- Added the capability to specify which reaction(s) are deleted for reactor UnitOps (1456)
- Improved the default class selection during creation of a new user-defined electrolyte component (2862)
- Improved convergence for node flowsheets where some UnitOps are near critical flow (3014)
- Enhanced VBClient.xls to enable reporting of unconverged UnitOps (3209)
- Revised ideal gas enthalpy for new components using the Joback method (3213)
- 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 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)

CC-THERM

- Improved zone temperature calculation for horizontal tube-side condensation with shell-side evaporation (3468)
- Added new options to the Nozzle dialog for an X-shell with a three-nozzle connection (3015)
- Corrected tube count for no-tube-in-window baffle case (3238)
- Corrected an issue where a superheated vapor error message could prevent a user from 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 Thermosyphon 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)

CC-DYNAMICS

- Corrected an issue with BREA 'KREA file not found' message for zero reactions (1235)
- Added the capability to run Data Maps for each time step in dynamics mode (1444)
- Added warnings for PID controller measured variable outside min/max range (3210)

CC-BATCH

- 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)
- Improved convergence of batch distillation using SCDS method (3212)

CHEMCAD Maintenance

- 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)
- Corrected a minor issue with air cooler mean temperature difference calculation (3196)
- Corrected an issue with the Close All Charts command leaving equilateral triangle charts open (3296)
- Corrected a rare issue with CHEMCAD stalling during launch while initializing VBA (3346)
- Corrected an issue with the heating value for solid components (3401)
- Corrected an issue with CHEMCAD automation menu.xla for 64-bit Office 2010 (3437)
- 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)

VERSION 6.3.1.4112 RELEASE NOTES

CHEMCAD New Features and Enhancements

- **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)**
- 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)
- Added 56 liquid-liquid equilibrium BIPs to the CHEMCAD database (2590)
- Improved the heat curve algorithm for bubble-dewpoint systems (2758)
- Added a warning for the Compressor UnitOp if inlet or outlet vapor fraction is less than 1 (2983)

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)**
- 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 an issue where an MSRK simulation incorrectly used SRK BIPs for component pairs with user-added MSRK BIPs (3220)
- Corrected an issue with the META UnitOp (3222)

CC-THERM

- 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 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)
- 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)

VERSION 6.3.0.3903 RELEASE NOTES

CHEMCAD New Features and Enhancements

- Added the capability to specify a chemical reaction enhancement factor for mass transfer distillation calculations (2842)
- Added an auto-estimation mode for the Batch Distillation Column UnitOp to improve column convergence (2896)
- Enhanced distillation curve characterization to use the standard stream selection dialog box (516)
- Added a warning for a one-sided heat exchanger so that users will know if utility rating entries are overriding Specifications tab entries (1151)
- Added the Browse capability to assist in finding a targeted Excel Data Map (1567/2772)
- Enhanced the Composite Curves feature to make shifting composite curves optional (2763)
- Enhanced stream properties to allow entropy to have units of absolute temperature (°R, K) (2808)
- Added the capability to rename an Excel Data Map while it is open in CHEMCAD (2852)
- Enhanced the RAMP UnitOp so that it no longer generates errors when disabled (2878)

CHEMCAD Maintenance

- Corrected an issue where a Stream Reference UnitOp in bypass mode could trigger a 'No specifications' error message (1959)
- Corrected an issue with the Predictive Crystallizer example simulation so that the Excel UnitOp runs properly (2547)
- Corrected an issue where CHEMCAD could close unexpectedly if left open and idle for long periods of time (2819)
- Corrected an issue where imported user electrolyte components were not recognized as electrolytes (2860)
- Corrected an issue where the Control Valve UnitOp in 'Fix flow and position' mode could recalculate the flow rate instead of pressure (2863)

VERSION 6.2.2.3728 RELEASE NOTES

CHEMCAD New Features and Enhancements

- Added the capability to use COM objects to control instances of CHEMCAD (591/2512)
- Added the Browse capability to assist in finding a targeted Excel DataMap (1567/2772)
- Added the capability to perform a data reconciliation from the xlCHEMCAD menu in Excel (1991)
- Added the capability to install CHEMCAD silently (2092)
- Added the Format > Starting IDs command, which enables the user to set starting ID ranges for streams and UnitOps (2157)
- Added a comment field for Excel DataMap (2469)
- Added the capability to copy and paste values within a DataMap (2486)
- Added the capability to store BIPs in a database other than NRTL, Wilson, SRK, PR, or BWRS (2602)
- Improved the performance of local thermodynamic settings (2634)
- Added the capability to shift hot and cold composite curves to achieve minimum delta T (2635)
- Added the capability to load a simulation into Excel as read-only from the xlCHEMCAD menu (2638)
- Added new carbon capture examples to CHEMCAD installation (2673)
- Enhanced the vessel pressure graph for a dynamic run by adding a y-axis title (2691)

CC-THERM

- Changed the default nozzle sizes in CC-THERM to standard pipe sizes (2845)
- Corrected an issue where deleting Excel Data Map rows could cause difficulties with the Data Map (2855)
- Improved the default inlet and outlet baffle spacing for new CC-THERM simulations (2857)
- Corrected an issue where a heat exchanger in fouling rating mode, with two or more parallel shells, could generate different service and calculated heat transfer coefficients (2886)
- Added the LMTD correction factor to air cooler reports (1479)
- Added Stream Analysis for segmental baffles with no tubes in window (2518)
- Added Window, End, and Crossing velocities to the tabulated report for baffles with no tubes in window (2523)
- Corrected an issue with fouling values being assigned to the wrong side of an air cooler for an air-side fouling rating (2662)
- Disabled certain calculated fields when the Heat Exchanger UnitOp is in simulation mode, as these values are not relevant in that mode (2804)
- Corrected an issue where CC-THERM reported inconsistent values for density on the TEMA report in MS Word or the internal report viewer (2815)
- Corrected an issue where creating a TEMA sheet could cause CHEMCAD to close unexpectedly (2818)
- Corrected an issue where a pinch warning appeared when the number of shells in series was greater than 1 for a Heat Exchanger UnitOp in simulation mode (2838)

CHEMCAD Maintenance

- Corrected an issue, introduced with version 6.2.1, which could cause flash errors in systems with dissolved supercritical gases in water (2761)
- Corrected an issue that occurred when a user specified 0 °C or 0 °F for a TPXY plot based on constant temperature (1064)
- Corrected an issue with stream or UnitOp groups not updating ID numbers (1078)
- Corrected an issue with improperly displayed plots and reports via Terminal Server (2103)
- Corrected a data entry issue in the crude oil database (2237)
- Corrected an issue with the xlCHEMCAD menu in Excel not initializing for Vista users (2471/2485)
- Corrected an issue with fouling values being assigned to the wrong side of an air cooler for an air-side fouling rating (2662)
- Corrected an issue where initial vessel pressure and liquid pressure could be inconsistent when static pressure was specified (2744)
- Corrected an issue where CHEMCAD simulations could fail to save when opened from and saved back to a USB drive (2778)
Removed redundant items from the View > Flowsheet Settings submenu (2812)
- Corrected an issue where subcooled liquid could improperly flash (only occurred in test versions) (2867)

CC-THERM

- Removed improper baffle cut restrictions on double and triple segmental baffles (2316)
- Corrected an issue with the reporting of generic turbulator data in Excel (2378)
- Corrected an issue where the wrong condensing type was reported for the VDI method (2475)
- Corrected an issue with the fouling ratings mode for air coolers (2657)
- Corrected an issue with co-current and vertical knock-back condensers displaying incorrect inlet vapor velocity (2697)
- Corrected an issue where a double-pipe simulation with a user-specified fin tube did not converge (2711)
- Corrected an issue with air cooler heat curve editing (2755)
- Added an error message that displays when no liquid is present in a kettle reboiler (2779)
- Corrected an issue where the General Specifications dialog box sometimes failed to appear when needed for a kettle reboiler (2780)

VERSION 6.2.1.3597 RELEASE NOTES

CHEMCAD New Features and Enhancements

- Added the LMTD correction factor to air cooler reports (1479)
- Added new 'read-only' LoadSim() function to COM API (1988)
- Added the Pikes Peak Selexol simulation to the CHEMCAD examples (2196)
- Added the capability to set legacy CHEMCAD 5 settings from the Options menu (2296)
- Added the capability to use the BWRS thermodynamic method in CHEMCAD 6 (2331)
- Added the capability to show/hide all stream names in a simulation (2350)
- Created a new recycle cut stream algorithm to take controllers into account (2497)
- Added the Ideal Cp/Cv property for Data Map and VBA (2517)
- Added Stream Analysis for segmental baffles with no tubes in window (2518)
- Added Window, End, and Crossing velocities to the tabulated report for baffles with no tubes in window (2523)
- Added the capability to regress electrolyte BIPs between inert solvents and ions (2541)
- Added an option for a Composite Curve delta T plot (2555)
- Added a Notes section to the Consolidated Report (2559)
- Added a new print format for electrolyte regression (2567)
- Changed the interaction between CHEMCAD and Microsoft Word due to MS security changes (2621)
- Added five new CHEMCAD examples for power plant carbon capture (2673)
- Added the TmmC term to the electrolyte NRTL model (2709)

CHEMCAD Maintenance

- Corrected the equation for the LMTD correction factor for 4-4 air coolers (2491)
- Corrected an issue with the toolbar Restore Default command (2514)
- Corrected an issue with the Controller UnitOp's Scale labels (2516)
- Corrected an issue where LLV unit icons created with Symbol Builder were added to the Flash subpalette (2540)
- Corrected an issue with nested controller loops and recycle loops in sequential mode (2551)
- Corrected an issue where CHEMCAD could give a false message when a local thermodynamics method is specified (2568)
- Corrected an issue where a new BIP stored in a simulation could be listed as a system BIP (2603)

CC-THERM

- Corrected an error with display units for shell-side and tube-side film resistances on CC-THERM reports (2318)
- Corrected an issue with the Vertical Thermosyphon not accepting the optional h film coefficient value (2515)
- Corrected an issue where the Reynolds number was not reported when using double-or triple-segmental baffle with Bell-Delaware method (2565)
- Corrected an issue where running an air cooler case on a Tower Plus unit could reset simulation settings (2584)
- Corrected an issue with thermosyphon heat curve convergence (2598)
- Corrected an issue with random text displaying for utility streams in the air cooler stream report (2619)

CC-DYNAMICS

- Added the option to reset integral error for the PID controller and control valve UnitOps (1231)
- Added a warning to display if the PID controller set point value is not within bounds of Variable Min and Variable Max (2033)
- Added rate regression simulations to the Dynamics examples directory (2227)
- Corrected an issue where the "Save As" command did not properly save the initial state for dynamic simulations (2501)
- Added the capability to use packed column rating pressure profile in dynamic simulations (2536)
- Corrected an issue where the runtime plot for CC-DYNAMICS could stop and prevent other plots from displaying under Windows Vista and 7 (2730)

VERSION 6.2.0 RELEASE NOTES

CHEMCAD New Features and Enhancements

- Introduced the CHEMCAD Report Writer system, which provides enhanced user-customizable reports (2006)
- Added the capability to enter user-created BIPs into a database (1525)
- Added the capability to generate equilateral triangular plots (870)
- Added the capability to omit unconverged points from a TPXY plot (2223)
- Added the capability to optimize OPC performance by selectively limiting the data published via OPC (2224)
- Improved System Authorization licensing method to apply to a specific computer rather than to individual users (2210)
- Added new examples covering Selexol(TM) carbon capture, reaction rate regression, and multiple-effect evaporation (2196, 2227, 2532)
- Added a thermal conductivity mixing rule for electrolytes (682)
- Added the capability for OPC users to change feed stream component flow rates, temperature, pressure, velocity, and total flow (800)
- Created the Mass and Energy Balances report, which replaces the Convergence report (855)
- Added distillation curves D86 and TPB to the available options on the Stream Properties report (912)
- Revised and made available packing data for Billet and Schultes method (1330)
- Added the window velocity value to the Zone-By-Zone Analysis for shell-side sensible flow and tube-side condensation or evaporation (1516)
- Added a multiple-inlet symbol to the Gibbs Reactor sub-palette (1577)
- Added the capability to model solid-vapor equilibrium (1710)
- Added the capability to edit the PID Controller calculated results on the Misc Settings tab (2032)
- Created a warning that displays if the PID controller setpoint value falls outside the sensor's defined range (2033)
- Made the Mass Transfer report easier to read (2078)
- Changed the name of the Stream Recorder History plot to Stream History (2085)
- Added a prompt enabling the user to specify where to store user-defined components for a single component database (2101)
- Added UNIFAC subgroups for component 2027, Pentaethylene Hexamine (2164)
- Added the capability to include up to 50 different solid components in a single simulation (2193)
- Added the capability to specify up to six objects for feed-forward controllers (2240)
- Added the capability to reset the UnitOp palette to display the original default icons (2253)
- Added a warning message to inform user of incorrect formula entered for user-added component (2282)
- Added the capability to set the CHEMCAD 5 import directories from within CHEMCAD 6 (2296)
- Changed the Topology report to include the calculation sequence (2308)
- Improved mass transfer column convergence (2369)
- Improved the TBP/D86 conversion method (2382)
- Added the capability to change heat exchanger simulation mode from a DataMap or controller (2467)
- Added mass balance view for dynamic simulations (2478)

CHEMCAD Maintenance

- Improved flash convergence for electrolytes in adiabatic flash (2438)
- Corrected an issue with the TPXY plot (PSRK/latent heat, Acetylene/Hexane) producing one out-of-place point (831)
- Corrected an issue with the behavior of items on the Other Data component editing dialog box (953)
- Removed a message about CAPE-OPEN thermodynamics from the Errors and Warnings tab when not applicable (1125)
- Corrected a rare issue with reactive distillation in SCDS not working properly on top of a batch reactor (1216)
- Corrected an issue with META unit improperly calculating stream flow rates between parent and child simulations (1543)
- Corrected an issue with VBA that could occur when the CHEMCAD interface was not running (1728)
- Corrected an issue that sometimes caused unzipped CHEMCAD files to have incorrect file creation dates (1973)
- Corrected an issue where user-created components could fail to copy properly as part of a stream copy operation (2202)
- Corrected an issue with the DataMap feature not working properly in simulations containing both SCDS and batch reactor UnitOps (2212)
- Corrected an issue where the use of local K-values for a distillation column could prevent a simulation from being saved (2247)
- Corrected an issue where standard liquid volume was reported incorrectly in the Stream Properties report for electrolytes (2290)
- Corrected an issue that prevented the addition of a user icon to the PID Controller sub-palette (2298)
- Corrected an issue with the total flow rate on the Bulk Properties page of pseudocomponent curves failing to match the flowsheet for certain flow units (2303)
- Corrected an issue with cut stream persisting after a second cut stream is selected (2305)
- Corrected an issue with calculation of air cooler tube-side pressure drop (2322)
- Corrected an issue with UnitOp dialog boxes performing input checks on calculated values (2332)
- Corrected an issue with Batch Reactor T/Q specifications not saving properly when zero reactions are specified (2348)
- Corrected an issue with user-specified cut streams failing to save correctly (2351)
- Corrected an issue where the OPC server functioned improperly when run as a COM server without the CHEMCAD graphical user interface (2364)
- Corrected an issue where the liquid phase was deleted from the Solid Components dialog box after changes were made to the flowsheet (2371)
- Corrected various formatting and content issues in Excel reports (2417, 2421, 2423)
- Corrected an issue that caused the Sensitivity Study dialog box to behave incorrectly for ten or more recorded variables (2437)
- Corrected an issue with the WAR report that caused extraneous characters to print with user component names (2456)
- Corrected an issue with electrolyte reactions being unavailable when first created (2462)
- Corrected an issue that prevented reaction constant changes made during a dynamic run from affecting that run's results (2490)
- Corrected an issue that prevented the Save As command from correctly saving the initial state for a dynamic simulation (2501)

- Added ITAE calculation to the PID controller UnitOp (2482)

- Corrected a dialog box issue to allow entry of liquid-liquid extractor side product specifications (2506)
- Corrected an issue that caused CHEMCAD, in rare situations, to stall after a user edited a stream and then ran the simulation (2508)

CC-THERM

- **Improved vibration analysis by using actual inlet/outlet baffle spacing for cross-flow velocity (1523)**
- **Added a 'No Baffle' option in the CC-THERM Baffle Specifications dialog box (1353)**
- Added the capability to enter a negative value for the air-side inlet temperature for air coolers (1981)
- Corrected an issue where baffle spacing was incorrectly affecting the calculation for X shell in a sensible-sensible case (2066)
- Corrected a rare issue with calculation of vapor phase fraction for the vibration report (2236)
- Corrected an issue with CC-THERM failing to save heat curve edits (2245)
- Corrected an issue with incorrect units displaying for shell-side and tube-side film resistances on CC-THERM reports (2318)
- Corrected an issue with heating curves not initializing correctly (2374)