



HPLC Column User Manual

imChem is a recognized French manufacturer of HPLC stationary phases and (u)HPLC columns.

Our packing technology guarantees the highest silica bead density within the column. Our specific iso-density slurry, developed for each stationary phase, includes electrostatic effect suppressors to maximize slurry homogeneity during the packing process—especially for sub-2.0 μm particles. As a result, each silica bead achieves perfect equilibrium with the others.

This yields high bed density, which enhances reproducibility and repeatability while guaranteeing a long column lifetime.

Each manufactured column is individually tested and supplied with a Certificate of Analysis (CoA) detailing testing conditions, operating parameters, and column specifications.

Test results confirm that the column is tightly packed and meets all expected quality standards.

Recommendation

Shipment condition	The column is shipped under the specific conditions specified in its Certificate of Analysis (CoA)
Storage room & storage condition	Store the column in a clean, dust-free environment at room temperature ($\sim 25^\circ\text{C}$). Ensure column end-plugs are securely tightened to prevent solvent leakage and column drying. For long-term storage, keep the column in a solvent mixture containing at least 70% organic solvent (e.g., acetonitrile or methanol). Regenerate the column at least every 6 months by flushing it with 10 column volumes of the storage solvent.
First Time Use	Use only HPLC-grade solvents. Ensure that initial flushing solvents are fully miscible with the shipping solvent. For optimal performance, we recommend installing the column in the flow direction indicated on the label. Although the column can operate bi-directionally, once a direction is selected, it must always be used in that same orientation.
Pre-Run Setup	LC System Flush: Flush the pump, injector loop, and flow path with the column shipping solvent (or the storage solvent for subsequent uses). Mobile Phase Prep: Verify that all mobile phases are properly mixed, filtered, and degassed before use. Miscibility Check: Confirm complete miscibility between the shipping/storage solvent, system hold-up solvent, and mobile phase.
From storage conditions to the mobile phase	Prevent Precipitation: Take special care when switching between storage solvents and mobile phases, especially when using buffers, to prevent salt crystallization.

	Equilibration Flow Rates: Condition the column using a flow rate suited to its internal diameter (ID): • 4.6 mm ID: 0.80 mL/min • 3.0 mm ID: 0.34 mL/min • 2.0 mm ID: 0.15 mL/min Baseline Stabilization: Monitor the UV baseline until a stable signal is achieved before starting sample injections.
During Operation	Verify that the set flow rate matches the recommended range for the column ID. Check that both operational temperature and mobile phase pH remain within the stationary phase's specified limits. Regularly monitor backpressure for any abnormal increase. Never stop the flow abruptly when using buffered mobile phases.
Post-Run Cleaning	Rinse Protocol: Flush the column with miscible solvents (10 to 20 column volumes per solvent) transitioning back to the final storage solvent. Buffer Removal: Rinse thoroughly to remove all traces of salts before introducing high-organic storage solvents. Baseline Check: Continue flushing until a stable UV baseline is recovered.
Column Protection	Sample Preparation: Always centrifuge or filter samples prior to injection. Particulates from dirty samples or mobile phases will damage system components and significantly shorten column lifespan. Guard Columns: Using a matching guard column is strongly recommended to protect against physical and chemical contamination. Guard Lifespan Assessment: Determine cartridge lifetime during method development (e.g., monitor peak broadening or pressure buildup). Replace the guard cartridge after reaching ~80% of its maximum expected lifespan.
Maximum operating Pressure	
	3 - 3.5 - 5.0 μ m x 2.1 - 3.0 - 4.6 mm => 4200 psi
	2.5 μ m x 4.6 mm => 8400 psi
	2.5 μ m x 2.1 - 3.0 mm => 14 000 psi
	1.7 - 1.8 - 1.9 μ m x 2.1 - 3.0 mm => 14 000 psi
Any recommendation, contact	info@imchem.fr