

Biozen Nano Columns - Tips for Care and Use

Thank you for purchasing Biozen Nano Low Flow Columns. Below are recommended instructions for the care and use of your Biozen Nano Column.



General Information

Each nano column manufactured by Phenomenex is individually prepared and tested. The column details, including specifications and performance test results should be entered into your information management system for easy tracking and reference.

Inspection

Upon receipt of column, please verify that the column you received is the one you ordered (i.e. dimensions, particle size, media). Additionally, please check the column for any physical damage potentially caused during shipment. Test the column immediately to verify performance and record the result of your test in your column information management system.

Column Characteristics

Biozen Phases	Description	Shipping Solvent	Particle Size (µm)	Pore Size (Å)	Surface Area (m ² /g)	pH stability	Temp (°C)	Pressure (psi)
Peptide XB-C18	Overall retention of both acidic and basic peptides through C18 stationary phase with di-isobutyl side chains, suitable for use with UHPLC.	Acetonitrile/ Water	2.6, 5	100	200	1.5-9**	90*	15,000
Peptide PS-C18	Excellent retention by combined positively charged surface ligand and C18 ligand, contains a positively charged weak base that repels basic ions, suitable for use with HPLC.	Acetonitrile/ Water	2.6	100	260	1.5-8.5***	90*	15,000
Polar C18	Enhanced selectivity/retention for polar analytes without diminishing useful non-polar retention	Acetonitrile/ Water	2.6	100	260	1.5 - 8.5***	60	15,000

* Temperature limits are dependent on method running parameters. Suggested max temperature for these Biozen LC columns is 90 °C, however temperature limits are dependent on your running parameters. Running at a pH greater than 8 and elevated temperature will compromise column lifetime. Continuous use of Biozen columns at the maximum temperature limit may compromise column longevity.

** pH range is 1.5 - 9 under gradient conditions. pH range is 1.5 -10 under isocratic conditions.

*** pH range is 1.5 - 8.5 under gradient conditions. pH range is 1.5 -10 under isocratic conditions

Column Flow and Pressure Characteristics

Typical values for Biozen Nano columns. (Column length 150mm)

Please note these pressures can vary depending on the connection tubing and length used.

Particle Size (µm)	Internal Diameter (µm)	Typical Flow (µL/min)	Typical Pressure (PSI)	
			Column L1	Column L2
2.6	75	0.25	2500	2700
5	75	0.25	1700	2000

Flow rates are dependent on internal diameter, particle size, and system pressure tolerance
For a 75 µm ID column, 0.200-0.500 µL/min is the practical range with optimal flow at ~0.3 µL/min.



Column Installation Tips

System check:

Before installing nano column, ensure that the system is ready:

- No leaks on all other connections
- Tubing are correctly routed on valve(s)
- Good signal from previous run

Mobile Phase/Solvent Check:

- Check that all solvents are miscible
- Check needle wash and prime solvent bottles/vials are filled with an appropriate solvent and at a good level
- Mobile phase is well mixed, filtered, degassed, freshly prepared if possible

Nano Trap Installation:

For more information on Nano Trap Installation please visit:
www.Phenomenex.com/NanoTrap

Column Installations:

Phenomenex Nano Columns are available in three different connection formats

- SecurityLINK™ Inlets with fused silica pigtail outlets
- Fused silica pigtail connections on both the column inlet and outlet
- Nano column cartridge format for use with SCIEX® OptiFlow® systems

Columns with integrated SecurityLINK are only compatible with 1/16 in. ports

When attaching columns with integrated SecurityLINK it is important to:

- Insert the SecurityLINK column entrance into the injection valve (direct inject) or trap valve (Trap and Elute)
- Tighten the SecurityLINK fitting until you hear and feel the torque indicating click.
Only one click is necessary for a leak-free connection

For more information on SecurityLINK and SecurityLINK installation please see
www.phenomenex.com/BiozenNano

Conditioning and Priming:

- The traps and column are ready for use once pressure is stable and system ready.

Column Cleaning

- Smaller ID columns can become clogged more easily. The use of a trap column can improve column lifetime through preventing the introduction of particulates to the analytical column. Should your Biozen Nano column become clogged these can be backflushed using the guidelines provided.

General Cleaning

1. 50:50 Acetonitrile/Water for at least 20 column volumes.
Ramp to 95:10 Acetonitrile/Water for 20 column volumes.
Return to 50:50 Acetonitrile and Water.
2. An alternative system would be 25:25:25:25 0.1% Formic acid in Water/ Acetonitrile/MeOH/IPA where the above system proves ineffective.
Please keep in mind the pressure tolerance of the capillary when working with more viscous solvents
3. It is recommended after cleaning you inject a blank to ensure column function has been restored.

*Traps and columns should be stored in solution after cleaning with ends capped.

Trademarks

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Testing Column Performance

Tips for Extending Column Lifetime

- The use of trap columns can significantly improve column lifetime
- Forward elution of the traps will ensure insoluble particulates remain on the trap column and show greater protection than when a reverse elution configuration is selected
- Selectivity of the trap should be optimized to best suit your sample matrix for maximum column protection
- Store your column in appropriate solvent(s).

Column Storage

It is important to ensure your column is clean prior to storage. This includes removal of buffer, salts, sample, and ion-pairing agents.

The recommended storage conditions are:

- Acetonitrile/H₂O (65:35 v/v)
- Methanol can be used in place of acetonitrile.

Column Warranties

Phenomenex Biozen Nano Low Flow Columns are warranted to meet the stated performance and quality and to be free of defects in material and workmanship. If you are unsatisfied for any reason, please give your Phenomenex Technical Representative a call. We'll do our best to solve the problem to your satisfaction. Should it become necessary to return the column, a Return Authorization Number must be obtained from Phenomenex first.

Disclaimers

New columns should be tested with the manufacturers recommended test mix, and previously used columns should be tested with the same or a suitable test mix for the analysis. Remember to re-equilibrate the system when changing solvents. Never change from one solvent to another which is immiscible, without going through an intermediate solvent which is miscible with both. This will damage the column. Never change to (or from) a buffer/ salt solution where the buffer/salt is not soluble in the second solvent. Again, this will damage the column. Never attempt to remove the column end-fittings. This will void the warranty.

Column Shock

Handle columns with care. Do not drop or create physical shock. Do not start pump at high flow rates, instead ramp up gradually over a few minutes. Set your pump pressure limit to protect the column in event of blockage. This can create voids which will detrimentally affect the column's performance.

For any additional questions visit:

[Phenomenex.com/chat](https://www.phenomenex.com/chat)

For more information on Biozen Nano Columns, please visit

www.phenomenex.com/Biozen