



Rezex HPLC Columns

Tips for Care and Use


General Information

Each Rezex column manufactured by Phenomenex is individually prepared and tested. Every column is supplied with a Certificate of Quality Assurance (CQA) which indicates testing conditions, operating parameters, and column details. The column details, including specifications and performance test results should be entered into your information management system for easy tracking and reference. Electronic copies of your column's quality documentation can also be acquired at: www.phenomenex.com/mysupport.


Inspection

Upon receipt of column, please verify that the column you received is the one you ordered (i.e. dimension, 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 and Operating Recommendations

	RCM-Monosaccharide	RSO-Oligosaccharide	RNO-Oligosaccharide	RNM-Carbohydrate	RAM-Carbohydrate
Part Number	00H-0130-KO	00P-0133-NO	00P-0137-NO	00H-0136-KO	00H-0131-KO
Ionic Form	Calcium	Silver	Sodium	Sodium	Silver
Standard Dimensions	300 x 7.8 mm	200 x 10 mm	200 x 10 mm	300 x 7.8 mm	300 x 7.8 mm
Matrix	Sulfonated Styrene-divinylbenzene				
Cross Linking	8 %	4 %	4 %	8 %	8 %
Particle Size	8 µm	12 µm	12 µm	8 µm	8 µm
Min. Efficiency (p/m) based on last peak	35,000	N/A	N/A	30,000	35,000
Typical Pressure (psi @ Testing Flow Rate)	260	115	130	170	285
Max. Pressure (psi @ Max Flow Rate)	1,000	300	300	1,000	1,000
Max. Flow Rate (mL/min)	1.0 (see pressure)	0.3	0.3	1.0	1.0
Max. Temperature (°C)	85	85	85	85	85
Typical Mobile Phase	Water	Water	Water	Water	Water
pH Range	Neutral	Neutral	Neutral	Neutral	Neutral
Guard Column Part No.	03B-0130-KO	03R-0133-NO	03R-0137-NO	03B-0136-KO	03B-0131-KO
Cleaning, Regeneration and Storage					
Organic Modifiers (Max)	5 % Methanol, IPA, Ethanol				
Inorganic Modifiers	5 % CaSO ₄ , Ca(NO ₃) ₂ , CaCl ₂	5 % Silver Nitrate	5 % Sodium Salts	5 % Sodium Salts	2 % Silver Nitrate
Avoid 	Acids, Bases, Non-Calcium Salts/ Metal Ions, >30 % Acetonitrile	Acids, Bases, Non-Silver Salts/ Metal Ions, >30 % Acetonitrile	Acids, Bases, Non-Sodium Salts/ Metal Ions, >30 % Acetonitrile	Acids, Bases, Non-Sodium Salts/ Metal Ions, >30 % Acetonitrile	Acids, Bases, Non-Silver Salts/ Metal Ions, >30 % Acetonitrile
Cleaning Solvent	100 % Water	100 % Water	100 % Water	100 % Water	100 % Water
Flow Rate (mL/min)	0.4	0.1	0.1	0.4	0.4
Temperature (°C)	85	85	85	85	85
Duration (hrs)	12	12	12	12	12
Regeneration Solvent	0.1 M Ca(NO ₃) ₂	0.1 M AgNO ₃	0.1 M NaNO ₃	0.1 M NaNO ₃	0.1 M AgNO ₃
Flow Rate (mL/min)	0.2	0.1	0.2	0.2	0.2
Temperature (°C)	85	85	85	85	85
Duration (hrs)	4-16	4-16	4-16	4-16	4-16
Ship/Storage Solvent	Water	Water	Water	Water	Water

Column Characteristics and Operating Recommendations Continued

	RPM-Monosaccharide	RHM-Monosaccharide	ROA-Organic Acid	RFQ-Fast Acid	RCU-Sugar Alcohols
Part Number	00H-0135-K0	00H-0132-K0	00H-0138-K0	00D-0223-K0	00G-0130-D0
Ionic Form	Lead	Hydrogen	Hydrogen	Hydrogen	Calcium
Standard Dimensions	300 x 7.8 mm	300 x 7.8 mm	300 x 7.8 mm	100 x 7.8 mm	250 x 4.0 mm
Matrix	Sulfonated Styrene-divinylbenzene				
Cross Linking	8%	8%	8%	8%	8%
Particle Size	8 µm	8 µm	8 µm	8 µm	8 µm
Min. Efficiency (p/m) based on last peak	35,000	35,000	50,000 (Acetic Acid)	30,000	12,000
Typical Pressure (psi @ Testing Flow Rate)	190	275	580	365	90
Max. Pressure (psi @ Max Flow Rate)	1,000	1,000	1,000	1,000	1,000
Max. Flow Rate (mL/min)	1.0	1.0	1.0	1.0	0.5
Max. Temperature (°C)	85	85	85	85	85
Typical Mobile Phase	Water	Water	0.005 N H ₂ SO ₄	0.005 N H ₂ SO ₄	Water
pH Range	Neutral	1-8	1-8	1-8	Neutral
Guard Column Part No.	03B-0135-K0	03B-0132-K0	03B-0138-K0	03B-0223-K0	03A-0130-D0
Cleaning, Regeneration and Storage					
Organic Modifiers (Max)	5% Methanol, IPA, Ethanol				
Inorganic Modifiers	5% Lead Nitrate	5% HNO ₃ , H ₃ PO ₄	5% HNO ₃ , H ₃ PO ₄	5% HNO ₃ , H ₃ PO ₄	5% CaSO ₄ , Ca(NO ₃) ₂ , CaCl ₂
Avoid 	Acids, Bases, Non-Lead Salts/ Metal Ions, >30% Acetonitrile	Acids, Bases, Salts/ Metal Ions, >30% Acetonitrile	Acids, Bases, Salts, Metal Ions, pH > 3, >30% Acetonitrile	Acids, Bases, Salts, Metal Ions, pH > 3, >30% Acetonitrile	Acids, Bases, Non-Calcium Salts, or Metal Ions, >30% Acetonitrile
Cleaning Solvent	100% Water	100% Water	100% Water	100% Water	100% Water
Flow Rate(mL/min)	0.4	0.4	0.4	0.4	0.1
Temperature (°C)	85	85	85	85	85
Duration (hrs)	12	12	12	12	12
Regeneration Solvent	0.1 M Pb(NO ₃) ₂	0.025 M H ₂ SO ₄	0.025 M H ₂ SO ₄	0.025 M H ₂ SO ₄	0.1 M Ca(NO ₃) ₂
Flow Rate (mL/min)	0.2	0.2	0.2	0.2	0.1
Temperature (°C)	85	85	85	85	85
Duration (hrs)	4-16	4-16	4-16	4-16	4-16
Ship/Storage Solvent	Water	Water	0.005 N H ₂ SO ₄	0.005 N H ₂ SO ₄	Water

Column Installation

Initial setup of your LC system is very important to ensure column performance:

Ensure That Your Lc System is Ready

- Seals, lines, injector clean
- Lines primed (no dry lines or bubbles)
- Steady baseline
- Consistent pressures

Flush the LC system (pump and line) with HPLC grade mobile phase, making sure all solvents in the system and column are miscible.

Mobile Phase Starting Conditions Check List

- Ensure that HPLC grade mobile phase is well mixed, filtered and degassed prior to use.
- Ensure that column shipping solvent, remaining solvent in LC system, and mobile phase solvents are miscible.

Tip

Rezex phases are very sensitive to changes in pressure, so minimizing column shock is very important when first installing. The two main points to keep in mind are to start with a low flow, without an oven temperature, at the direction of flow.

Installation Steps

1. Set the flow rate to 0.1 mL/min, oven temperature ambient.
2. Install the column in the direction of flow and condition the column for at least 10 column volumes with mobile phase.
3. Stop flow and wipe outlet end of column to remove any particulates before connecting to detector. Depending on the phase, some discharge is normal.
4. Install the column fully and flush for 10 column volumes.
5. Ramp flow to method flow and set oven temperature.
6. Monitor for pressure and baseline. When both are steady, the column is ready for use.
 - a. A steady pressure should indicate a constant flow while pressure fluctuation will indicate air in the system.
 - b. Wide fluctuations in pressure may shock and damage the column so it's important to observe the pressure.

Mobile Phase Compatibility Tips

- Please use HPLC grade or above solvents only and the allowed modifiers in the above chart.
- Please do not use any solvents or samples containing a metal that is not the counterion being used.

Column Cleaning Tips

- Please use the cleaning solvents listed in the preceding chart, first remove the guard column and then reverse the direction of flow.
- Flush for at least 12 hours, at 75 ° C at 0.2 mL/min.

Column Regeneration Tips

1. When regenerating the column, use only the concentration of the buffer listed in the preceding chart.
2. When flushing with buffer to regenerate overnight, first remove the guard column, reverse the flow direction, reduce the flow to 0.2 mL/min and flush for 4-16 hours.
3. Return the column to normal flow direction the next day and recondition for 10 column volumes.

Amounts of Sample That Can Be Separated

Column Type	ID (mm)	Approx. Dead Volume (mL)*	Typical Flow Rate (mL)	Typical and (Max.) Injection Masses (mg)	Typical and (Max.) Injection Volumes (µL)**
Analytical	4.6	1.5	0.5 – 2.0	0.1 (2.5)	10 (200)
Semi-Prep	10.0	7.3	5.0 – 20	1.0 (25)	50 (1000)

Column Warranties

Phenomenex HPLC 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.

Trademarks

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Column Storage Tips

- Before store, make sure the column has been flushed with HPLC grade solvents.
- Storing in 100 % HPLC grade water without organic modifier is fine.
- Prepare all storage solvents with HPLC grade water.
- Avoid jostling and dropping the column as this might cause column shock.

Tips for Extending Column Lifetime

Sample Preparation

Check for sample solubility in mobile phase. Use mobile phase as diluent where possible. Trace impurities can dramatically degrade column life. Filter all samples using a 0.45 µm or 0.2 µm porosity filter prior to injection.

Matrix Cleanup

Utilize sample preparation techniques such as solid phase extraction (Strata-X SPE products) or accessories (Phenex™ Syringe Filters) to minimize the injection of unwanted contaminants onto your system and column.

Use the correct guard column or guard cartridge system (SecurityGuard™) to help remove particulates before they foul your column.

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.

Column Questions and Support

If you have any additional questions, please reach out to our amazing technical team through:

Email: support@phxtechnical.zendesk.com

Live Chat: <https://www.phenomenex.com/info/page/2015phenomchat>

For more information on Rezex HPLC and Preparative columns, please visit www.phenomenex.com/Rezex