Operation Manual
Shodex NH2P40-E series

(Please read this manual carefully before using the column to keep its good performance and life.)

1. Introduction

Shodex NH2P40-E series are micro type columns of amino columns. Polymer–based packing material is used, so wide pH range (pH2-13) can be applied.

2. Instructions in handling <Important>

Caution!

* Take notice of keeping instructions about the solvents and the reagents used with the column not to occur problems related to losing your health or leaking.

Attention!

* Use the column within the regular range of flow rate, pressure and temperature. There is a danger of deteriorating the performance when it is handled beyond the permissible range even for a short time. See the clause "4.Usable conditions" about the permissible range.

3. Specifications

Packing material : Polyvinyl alcohol gel with polyamine chemically bonded
Particle size : 4μm
Column material : Stainless steel type-316
Connection : Internally-threaded type, No. 10-32 UNF, outer size is 1/16 inch
Shipping solvent : CH3CN/H2O = 75/25

Column	Size (mm) I.D.× L	Theoretical plate*(TP/pc)	Fas*
NH2P40-2E	2.0 × 250	≧7,000	0.80～1.5
NH2P40-1E	1.0 × 250	≧7,000	0.80～1.5
NH2P40-M5E	0.5 × 250	≧6,000	0.80～1.5
NH2P40-M3E	0.3 × 250	≧5,000	0.80～1.5

*analysis condition : mentioned in Certificate of Analysis

4. Usable conditions

Column	Recommended Flow Rate (μL/min)	Maximum Flow Rate (μL/min)	Maximum Pressure (MPa/pc)	pH range	Temperature (℃)
NH2P40-2E	100～140	200	15.0	2～13	15～50
NH2P40-1E	25～35	60	15.0	2～13	15～50
NH2P40-M5E	7～9	15	15.0	2～13	15～50
NH2P40-M3E	3～5	9	15.0	2～13	15～50

Eluent : 1) In sugar analysis: Mixture of pure water and acetonitrile. Buffer are able to use, for example, tetrapropylammonium and hydroxidesodium acetate etc.
2) In anion exchange analysis: phosphate salts, acetic salts, tris-buffer, NaCl, KCl etc.

Solvent replacement: Set flow rate less than half of above recommended flow rate when solvent is replaced.

Lines : Less than 50μm i.d. tube for -1E, M5E and M3E.
Injector : micro-HPLC type for -1E, M5E and M3E
Detector : micro-HPLC type for -1E, M5E and M3E

5. Notes

Please remind below points to prevent troubles.

Attention!

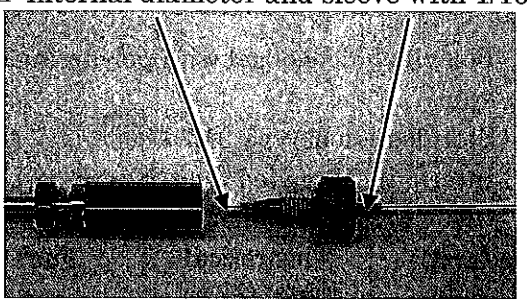
1) Do not remove the end fittings of the column under any circumstances.
2) Do not make a strong impact on the column: such as hitting or dropping on the floor.
3) Do not make column bended and twisted.
4) Replace the solvent in the chromatograph with the eluent to be used before connecting the column.
5) Connect the column with the flow direction corresponds to the arrow mark on the tag.
6) Solve sample with eluent.
7) Filtrate the sample with a disposable filter (0.45μm) to prevent deterioration by adsorbing insoluble matters.
8) When column is stored, replace in-column solvent to shipping solvent and tight plag, then keep it in room temperature.

6. Connection micro column and tubes

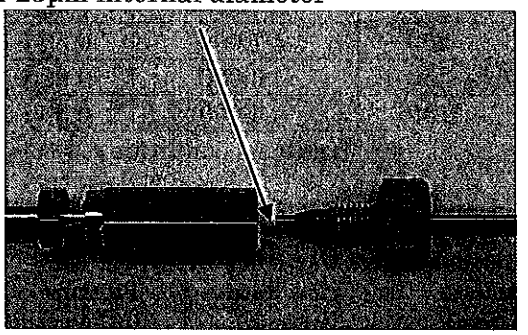
1) Use of narrow tube as system lines is required, because the diameter of tubes have influence to separation performance strongly.
2) Use fitting connector made PEEK or plastics for connecting column and tube.

(For example)

fused silica tube with 50μm internal diameter and sleeve with 1/16″ outside diameter



PEEKsil tube with 50μm or 25μm internal diameter



0.5mmID column are used in this photo

If you are interested in 150, 50, 35mm length column, please contact us.

Column washing method

(A) There are cases that column pressure reduces by back washing, eluting solvent from opposite direction, when column pressure increased. Set flow rate less than half of regular flow rate.
(B) Small amount of metal is one of contamination and it cause of trouble in sugar analysis In this case, another washing method is useful. Please refer Shodex web site about detail of column washing method.

Calculation of theoretical plate number

1) Theoretical Plate Number half bandwidth method
2) Peak symmetry coefficient(Fas) =b/a
   a: width of front half at the 10% peak height
   b: width of later half at the 10% peak height

Technical Support E-Mail : shodex.lab@shoko.co.jp
http : //www.shodex.com