

## Examples of chromatographic conditions and datas

	Amino acids	CuSO <sub>4</sub> aq. soln. [mM]	Flow rate [ml/min]	Retention time; L-isomers [min]	Separation factor [α]	Separation rate [Rs]
1	Orn•HCl	0.1	0.2	6.8	1.26	<1
2	Lys•HCl	0.1	0.2	7.7	1.45	<1
3	Ala	0.1	0.5	11.0	1.39	1.4
4	His•HCl	0.1	0.5	10.5	1.63	1.7
5	Ser	0.1	0.5	10.1	1.25	1.0
6	Thr	0.1	0.5	11.3	1.29	1.3
7	Cit	0.5	0.5	10.4	1.75	2.3
8	Hyp	1.0	0.2	23.8	1.23	1.1
9	Pro	1.0	1.0	7.3	2.13	4.5
10	Val	1.0	1.0	8.9	2.04	5.0
11	Nval	1.0	1.0	11.5	2.07	4.7
12	Asp	2.0	0.5	13.2	1.18	0.8
13	Glu	2.0	1.0	16.2	1.54	2.3
14	Ileu(DL)	2.0	0.5	30.4	2.14	6.5
15	Ileu(allo)	2.0	0.5	21.9	1.97	6.0
16	Leu	2.0	1.0	14.6	1.97	4.6
17	Nleu	2.0	1.0	24.1	2.16	6.5
18	Met	2.0	1.0	10.3	1.64	2.6
19	Tyr	2.0	1.0	22.5	1.85	5.3
20	Eth	2.0	1.0	26.4	1.69	5.0
21	Phe	2.0	1.0	37.8	1.84	6.3

1. Column temperature; ambient Detection; 254nm
2. These are example data and do not guarantee the column specifications.
3. Improved resolution or appropriate chromatogram can be obtained by further investigating chromatographic conditions.
4. For each amino acid in the table, D-isomer elutes ahead of L-isomer except for Hydroxyproline.

## Notes

1. It will take hours for equilibrium between ligand of stationary phase and copper ion of eluent. Two to three hours of conditioning the column with the eluent is advised before sample injection or after changing concentration of CuSO<sub>4</sub> of eluent.
2. For acidic amino acids, higher CuSO<sub>4</sub> concentration of eluent provides better resolution.
3. For weakly retained hydrophilic amino acids, low flow rate (0.2-0.5 mL/min) yields better resolution.
4. Peak area may decrease with continuous injection of samples, when the concentration of amino acids in sample solution is much higher than that of CuSO<sub>4</sub> in the eluent.
5. Please be careful not to flow both water soluble organic solvents (CH<sub>3</sub>CN, CH<sub>3</sub>OH, etc) and non water soluble organic solvents (n-hexane, chloroform, etc) into the column. The column will be fatally damaged and will never separate optical isomers. Please be particularly careful if HPLC equipment is used together with RP mode and NP mode.
6. Please do not use acid or alkali solutions to adjust pH of eluent. And also do not use buffer solutions. These solutions may cause forming precipitation, hence cause of blockage of the column.
7. For strongly retained hydrophobic amino acids, addition of CH<sub>3</sub>CN or CH<sub>3</sub>OH in the eluent enables faster elution. The concentration of these organic solvents should be below 15 v/v%.
8. DOPA and other non-polar amino acids will be strongly adsorbed on the packing material and will cause contamination of the column.
9. Regeneration of contaminated column is difficult.

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MCI GEL™

## SPE sorbent series

Solid phase extraction sorbents

For a pretreatment of analytical sample, we provide various SPE sorbents with various chemical structure, hydrophobicity, and micro-pore sizes. You can select our SPE sorbents depending on your molecule nature.

- CHP85/P120, CHP87/P120, CHPOD/P30: SPE sorbents with a controlled micro-pore size, high performance small molecule adsorption except large molecule mixture, like proteins.
- CSP800: SPE sorbents with high concentration ratio and high recovery, excellent for enrichment trace organic compounds and non-ionic substances such as trichloroethylene from environmental water. These SPE sorbents are to prepare samples for mutagenicity study or GC/MS analysis.
- SFP08/P25: SPE sorbents dedicated for small drug molecules extraction. Superior purity of this SPE extracts offers easier and faster sample preparation.
- CHL10P, CHL20P, CLB20P: SPE sorbents for rare earth metals that contains chelating functional group. CLB10P: SPE sorbents for borate, arsenic and selenium ions that contains glucamine groups on high porous ST/DVB matrix.

## Material list

### ● Synthetic adsorbents and reversed-phase materials

Name	Mean particle size [μm]	Pore size	Surface area [m <sup>2</sup> /g]	pH range	Typical Application
CHP85/P120	120	middle	880-940	full range	Small molecules extraction
CHP87/P120	120	small	820-910	full range	
CHPOD/P30	30	large	340-380	2~12	
CSP800	120	middle	790-920	full range	Enrichment of trace of organic compounds
SFP08/P25	25	middle	>1000	full range	Small molecules extraction

### ● Chelating type

Name	Functional group	Mean particle size [μm]	Ion exchange capacity [meq/ml]	Effective pH range	Typical Application
CHL10P	Iminodiacetic acid	120	>1.5	2-6	Metal Extraction
CHL20P	Polyamine	120	>1.8	2-6	Metal Extraction
CLB10P	Glucamine	120	>1.0	>3	Extraction Bron Removal