Version: [00] 2020.08.24

Ultisil® Amino Acid Plus Column Care and Use Manual

Ultisil® Amino Acid Plus column is one of dedicated columns released by Welch Materials which through further optimizing the analysis method on the basis of the original dedicated column for amino acids analysis. It is the second generation of dedicated column for amino acid analysis for efficient and high-throughput amino acid detection.

Column Paramaters:

Carbon load	Pore Size	Surface Area	pH Stability	Max. Temp.	Max. Pressure
10%	120 Å	320 m^2/g	1.0-7.0	60℃	40 Mpa

Identification of Column:

Each Welch column has a unique serial number, by which, the column can be traced back to each production procedure if any problem occurs. So when customer receives the column, please check:

1.If the package is intact and the label shows the same column required.
2.If inside the box there is a CofA with a signature of quality inspector.
3.If the column has any apparent defects on surface and two end caps are complete.
4.If the column has an ID label with Welch logo and the column specification on the label is consistent with the one on the box.
5.Small particulate matter is packed inside column, please DO NOT open the column in case of inhalation. If have to, please use protection.

The Correct Use of Column:

Chromatographic columns are expensive chromatographic consumables, the correct use and maintenance of column is crucial for ensuring the normal use and extending the column life.

1. Precautions before using column:

1) Storage solution in chromatographic column: 75% methanol solution.

2) Equilibrium of the new chromatographic column: rinse with 80% methanol solution or 80% acetonitrile solution at a flow rate of 0.5 ml/min for 4 hours, then rinse with 30 times the column volume of mobile phase which is capable of detecting the mutual solubility. Finally, use the mobile phase to stabilize the system until the baseline is stable.

2. Direction of chromatographic column:

The arrow direction on the label of HPLC produced by Welch is the flow direction of mobile phase, and you should follow this direction during the process of using to avoid two-way mixing, which will lead to contamination of packing materials at both ends. At the same time, it is harmful for the regeneration and maintenance of chromatographic column.

3. Keep mobile phase and sample clean:

For the reason that the fine particles suspended in the sample or mobile phase will block the column at both ends of the frits, use guaranteed reagent as far as possible and make sure the reagents used for little are at least analytical reagent. Water should be ultrapure water or commercial purified water, it is recommended to filter with 0.45 μm filter membrane before using. The sample solution should be filtered by a 0.45 μm syringe filter.

Column Paramaters:

The impurity in the sample is the main reason for the pollution of column and the decreased column efficiency, complex samples can use SPE column to deal with, if not convenient to deal with, you'd better use the suited guard column and sample solvent with matched mobile phase. The phenomena that samples are not miscible or there is huge difference in polarity should be avoided, otherwise it will cause worse shape of peaks or ghost peaks. However, using mobile phase to dissolve sample can effectively avoid the above situations.

4. Rinse after using:

1) If no buffer salt is used, back flush column with 10-20 times column volume of 80% methanol or 80% acetonitrile after analysis, then preserve the column.
2) If buffer salt is used, remove buffer salt by back flushing 10-20 times column volume with transition mobile phase or low proportion of organic phase, and wash column with 10-20 times column volume of 80% methanol or 80% acetonitrile in reverse direction, then preserve the column.
3) If ion-pair reagent is used, remove buffer salt by reverse flushing 10-20 times column volume with transition mobile phase or low proportion organic phase, and then wash column of 10 times column volume with 50% methanol in reverse direction. Finally, reverse flushing 10-20 times column volume of 80% methanol and preserve the column.

Column Regeneration:

As expensive chromatography consumables in liquid chromatography, chromatographic columns will have abnormal phenomenon with increasing times of injection and the passage of time. If column efficiency of one column is too low or the column pressure is too high, it is generally believed that the column life goes to an end. In order to prolong the column life, appropriate regeneration is necessary.

Proper column regeneration is also an effective way to extend the column life: (rinse with 20-30 times column volume of each of the following solvents)

100% methanol -- 100% acetonitrile -- 100% isopropanol -- 100% methanol -- 100% dichloromethane or
100% n-hexane -- 100% isopropanol -- 100% methanol