Analysis of Amino Acids with Ultisil Amino Acids Plus HPLC Column

Introduction

Amino acids are the basic constituents of proteins and also intermediates in metabolic pathways. Analysis of amino acids is high demanded in the pharmaceutical research and food industry for protein characterization, cell culture monitoring, and nutritional analysis of foods and feeds. Reverse phase HPLC was widely used for the separation of the amino acids. However, direct HPLC analysis of amino acids has some challenges：

- Most of amino acids are very polar due to their carboxyl group(-COOH) and amino group (NH2). This results in poor retention in Conventional reversed-phase conditions.
- Most of the amino acids and their substituent groups have poor UV absorbance and poor sensitivity in detection.

To overcome these problems, analysis of amino acid usually adopts the method of deriving amino acids with OPA or FMOC to (1) reduce the molecular polarity and increase the retention in column and (2) add chromophore to the molecule and increase the sensitivity with UV or fluorescence detector. However, these derivatization methods also have some drawbacks such as the need of extra sample preparation, complex derivatization process, poor repeatability due to the instability of the derivatization.

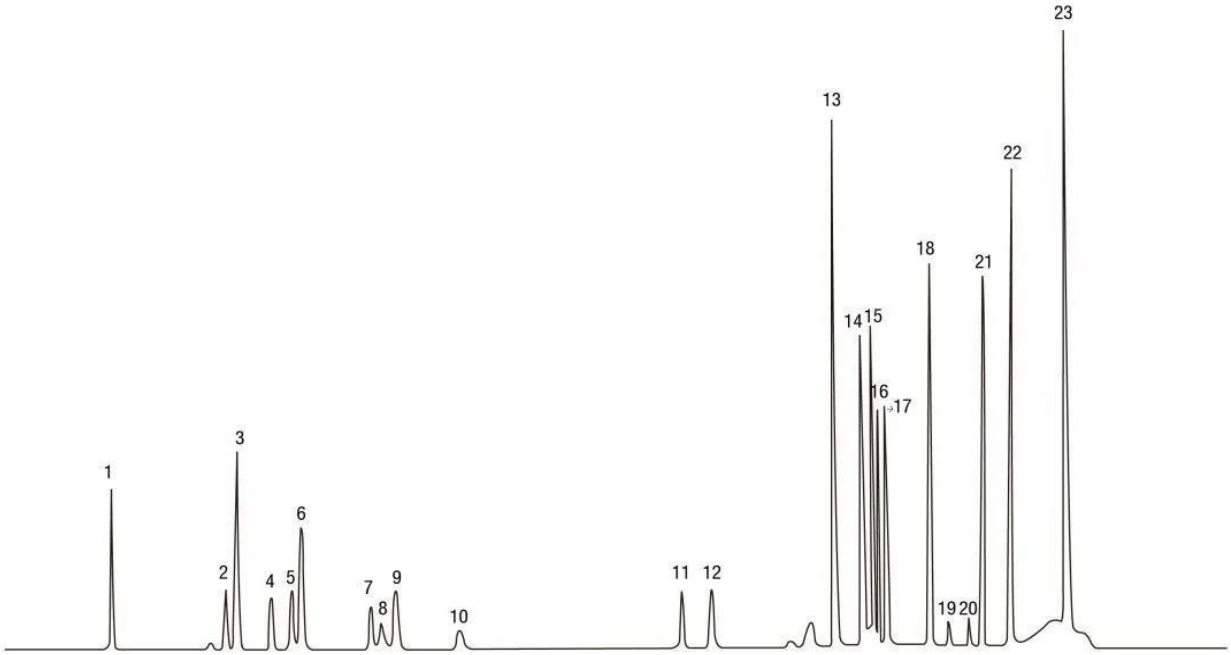
Ultisil® Amino Acid Plus Column

Ultisil® Amino Acid Plus column is our new product particularly dedicated to amino acid analysis. This column improves the retention of polar amino acids and delivers a high resolution of amino acids to ensure accurate and precise qualitative and quantitative results. Combining this column with an ELSD detector, users can detect more kinds of Amino acids without the need of derivation. Below are some beneficial characteristics of Ultisil® Amino Acid Plus column:

- Separate 23 amino acids by reverse-phase chromatographic analysis without the need of derivation, which makes amino acid analysis more convenient and flexible;
- Excellent selectivity and separation efficiency allow ones to get more accurate analysis results;
- This special column for amino acids analysis has superb reproducibility and stability in qualitative and quantitative analysis;
- Demonstrated success in separation and analysis of Amino acids separated and derived from proteolytic products, cell culture medium, food and feed.

Performance Qualification

Each column would be tested with 23 amino acids by following strict quality control procedures to ensure the separation resolution and test reliability meet customers' performance requirements



1)Taurine	9)Glumatic acid	17) Tyrosine
2)Glycine	10) Cysteine	18)Arginine
3)Serine	11)Proline	19)Isoleucine
4)Aspartic acid	12)Cystinol	20)Leucine
5)Hydroxyproline	13)Valine	21)Norleucine
6)Glutamine	14)Lysine	22)Phenylalanine
7)Threonine	15)Histidine	23)Tryptophan
8)Alanine	16)Methelloonine	-

Keywords:
Amino Acids, Proteins, Cell culture, HPLC, Column chemistry, Analytical instrument, Pharmaceutical research