



# All About Welch C18 Columns-Let's have a closer look

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## Overview

C18 column is octadecyl silane bonded silica packing (Octadecylsilyl, ODS for short). This kind of packing plays an extremely important role in reversed-phase chromatography. It can complete 70-80% of the analysis tasks of high-performance liquid chromatography. Since C18 (ODS) is a long-chain alkyl bonded phase with higher carbon content and better hydrophobicity, it is the most widely used type of bonded phase in chromatographic analysis.

Welch C18 column is our one of the core product. It has a lot of models, mainly including conventional reversed-phase columns, 1.8 $\mu$ m ultra-high pressure analytical columns, and core-shell analytical columns. In this article, we will get to know the conventional reversed-phase chromatographic columns we use most often. Mainly introduce the various models of our Welch chromatographic column, tolerate the pH range, and compare the characteristics of the various chromatographic columns themselves.

### Ultisil® XB-C18

*Tolerance pH range: 1.5-10.0*

### Characteristics

- One of the best chromatographic columns with comprehensive separation performance and universality;
- Classic "Star" products, excellent performance, extremely stable stationary phase, complete batch tracking and reproducibility;

## Ultisil® LP-C18

*Tolerance pH range: 0.5-8.0*

### Characteristics

- Resistant to 100% water and 100% organic solvent;
- Side chain steric protection shields hydroxyl groups;
- Non sealing process;
- Strong spatial position selectivity;
- It has strong orthogonality with conventional C18. For items that cannot be separated on conventional C18, you can try this chromatographic column;
- Ideal baseline noise can be obtained by ELSD detector under strong acid conditions, indicating that the loss of bonding phase is small under strong acid conditions;
- Good column life can be guaranteed below 80 ° high temperature.

## Ultisil® AQ-C18

*Tolerance pH range: 1.5-10.0*

### Characteristics

- Resistance to 100% – 0% aqueous phase;
- Double tail sealing process;
- Moderate carbon load;
- The bonding density of alkyl chain is low;
- Moderate retention capacity;
- The adsorption capacity for impurities is weaker than xb-c18;
- In the content measurement of chemical drugs, it is the first column in the food industry.

## Ultimate® PLUS C18

*Tolerance pH range: 2.0-8.0*

### Characteristics

- Lower specific surface area and slightly larger pore diameter;
- Lower carbon loading makes the retention capacity weaker than xb-c18;
- Double tail sealing process;
- There is a good peak shape when detecting acidic and alkaline polar substances;
- It is the best choice to retain too strong substances on xb-c18.

## Ultisil® ALK-C18

*Tolerance pH range: 1.5-10.0*

### Characteristics

- Lower specific surface area and slightly larger pore diameter;
- Lower carbon loading makes the retention capacity weaker than xb-c18;
- Double tail sealing process;
- Good peak shape when detecting acidic and alkaline polar substances;

## Ultisil® CDS-3

*Tolerance pH range: 2.0-8.0*

### Characteristics

- Universal type, compatible with 100% water;
- The adsorption of basic and acidic compounds is small, which makes the compounds have perfect peak shape on the chromatographic column.

## Ultisil® XS-C18

*Tolerance pH range: 1.5-10.0*

### Characteristics

- The unique multi-layer bonding process is adopted, with high bonding density, close spatial distance between ligands and good spatial shape selectivity;
- High column efficiency, high column capacity, high carbon loading, strong compound retention and excellent steric selectivity;
- For small molecules, different objects are selectively prominent, just like foreign objects, with heterogeneous positions.

## Ultisil® Polar RP

*Tolerance pH range: 1.5-10.0*

### Characteristics

- Reversed phase column with different selectivity from ordinary C18;
- The embedding of polar groups enables the alkyl phase to be solvated and wetted by water when the organic ratio in the mobile phase is very low (even when 100% of the water mobile phase), and phase collapse will not occur;
- Better retention and selectivity of polar substances;
- C18 is the preferred column for the detection of organic acids.

## Xtimate® C18

*Tolerance pH range: 1.0-12.5*

### Characteristics

- The organic-inorganic hybrid surface technology patented by Welch is used to modify the silica gel matrix, which is specially designed for the development of liquid chromatography method, and can use a variety of mobile phase systems and a wide temperature range for method development in a wide pH range;
- Under the most severe conditions, it also has very stable performance and longer service life. Under conventional conditions, it has a longer service life than ordinary C18. It is produced by advanced innovative technology and carries out quality control according to strict quality standards. It is a reliable solution for users for difficult chromatographic separation;
- There is an excellent peak shape for the determination of alkaline easily tailing substances under neutral conditions.

## Topsil® C18

*Tolerance pH range: 2.0-9.5*

### Characteristics

- A relatively economical chromatographic column;

## Welchrom® C18

*Tolerance pH range: 1.5-10.0*

### Characteristics

- Economical chromatographic column, low column pressure, low price, high cost performance, advanced performance in products at the same price.

## Blossmate® C18

*Tolerance pH range: 2.0-8.0*

### Characteristics

- High end chromatographic column series launched by Welch Materials;
- Compared with other series of products, blossomate C18 series has comprehensively improved the performance and reproducibility of chromatographic column, which is especially suitable for the detection and application of multicomponent impurity projects.

## Blossmate® PSV C18 Plus

*Tolerance pH range: 2.0-8.0*

### Characteristics

- Special column for food preservative detection;
- High end brand new high column efficiency and high proportion water phase tolerance;
- It has high selectivity and strong retention ability for hydrophilic and polar compounds, and these targets are often difficult to retain and separate on ordinary C18 column;
- The technology of complete tail sealing greatly enhances the stability of the filler, showing a stable baseline and high sensitivity even under neutral pH conditions, so it is especially suitable for efficient separation of combined technologies such as LC and MS;
- The integrated design of protection column and analysis column is adopted, and a body type protection column is added at the front end of the analysis column to protect the analysis column in an all-round way. At the same time, the dead volume is small and it is convenient to replace the column core;
- It has better separation and retention capacity, better peak shape and higher column efficiency.

## Blossmate® ST C18

*Tolerance pH range: 1.0-11.0*

### Characteristics

- Special silica gel matrix surface treatment technology is adopted to ensure high mechanical strength and high column efficiency of silica gel matrix, and broaden the pH tolerance range to 1.0-11.0;
- Suitable for the analysis of alkaline samples and the development of methods under higher pH conditions.

## Blossmate® Aqs C18

*Tolerance pH range: 2.0-8.0*

### Characteristics

If you have any problem or require further information, please contact [info@welchmat.com](mailto:info@welchmat.com).



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