

The background features a central cluster of overlapping, semi-transparent squares in various shades of blue, green, and grey. Two small inset images are visible: one at the top center showing laboratory glassware and a molecular model, and another at the bottom center showing a colorful chromatogram and a glass vial.

Anavo® Mobile Phase Impurity Trap Column (Ghost Peak Trap Column)

Design Principles of Flow Phase Impurity Capture Columns:

In high-performance liquid chromatography (HPLC) analysis, methanol, acetonitrile, water, and buffered salt solutions are commonly used as the mobile phase for analysis. Although the solvents used are of high purity and HPLC grade, and the water and reagents used to prepare buffered salt solutions are also of as high purity as possible, the quality of reagents from various brands can vary significantly. Additionally, water may contain impurities that are detrimental to the analysis to varying degrees. The chemical reagents used to prepare buffered salt solutions inevitably introduce some soluble impurities. These soluble impurities can reach the chromatography column during the system equilibration process and accumulate in the packing material at the inlet of the chromatography column, while some impurities with slightly weaker retention capabilities are evenly distributed throughout the column bed.

Under isocratic conditions, some impurities with strong retention in the mobile phase may not be eluted, which can affect the analysis. Meanwhile, impurities with slightly weaker retention can reach a dynamic equilibrium between the stationary phase and the mobile phase within the chromatographic column as they are continuously flushed by the mobile phase. These impurities continuously enter and are eluted from the column, leading to an increase in the baseline of the chromatogram and a decrease in detection sensitivity. Since the strongly retained substances in the mobile phase are not eluted and are visible on the chromatogram, while the weaker impurities are included in the baseline and are difficult to identify as interference, the issue of impurities in the mobile phase under isocratic conditions is often overlooked.

Under gradient conditions, the elution power of the solvent is typically weaker in the initial phase due to the gradient setting, but it gradually increases as the gradient time extends. Based on this principle of gradient settings, substances with strong retention that accumulate at the inlet end of the chromatographic column during the system's equilibrium, phase will be eluted as the elution power increases during the gradient change, appearing as a peak in the chromatogram.

Similarly, some impurities with weaker retention that are evenly distributed within the chromatographic column during the system's balancing process will be eluted as the elution strength increases during the gradient change. These impurities will appear as peaks or broad peaks on the chromatogram. The peak areas of these peaks or broad peaks vary in size, typically depending on the duration of impurity accumulation, and their retention times are often unstable. Because these peaks or broad peaks have unknown origins and are erratic, they are referred to as "ghost peaks."

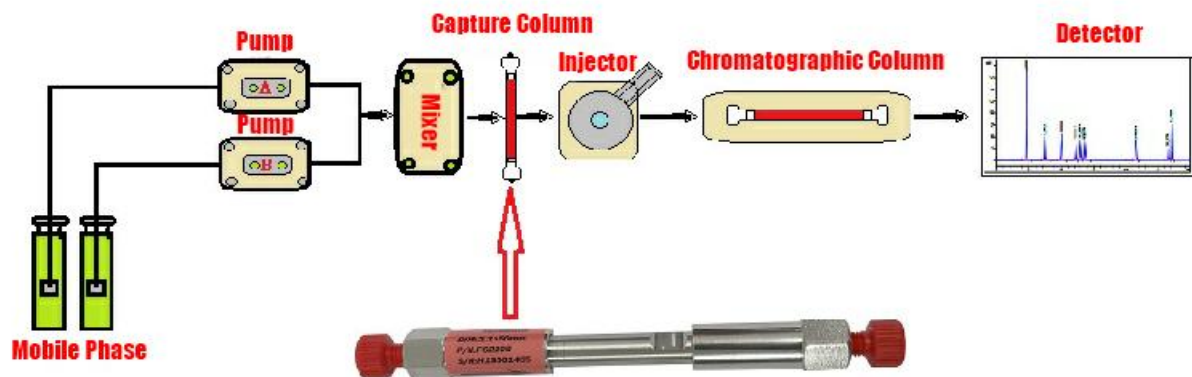
Advantages of Using Impurity Capture Column for Mobile Phase:

1. Effectively captures impurities in the mobile phase—eliminates “ghost peaks.”
2. Effectively captures impurities in the mobile phase—reduces background and improves sensitivity.
3. Ensures more uniform mixing of the mobile phase—results in a smoother baseline.



Usage and Maintenance of Flow Phase Impurity Capture Columns:

1. Installation Location: For gradient systems, the impurity capture column should be placed between the gradient mixer and the injector. For isocratic systems, it should be installed between the pump and the injector.
2. Installation Direction: The impurity capture column has a specific orientation; please install it according to the arrow direction on the label. Do not use it in reverse.
3. Usage Method: Before initial use, wash the capture column with pure methanol for 15 minutes, and then connect it to the chromatographic column for analysis.
4. Maintenance Plan: This product does not require special maintenance; it can be maintained in the same way as ordinary C18 reverse-phase columns. If not used for an extended period, it is recommended to store it in pure methanol or pure acetonitrile.



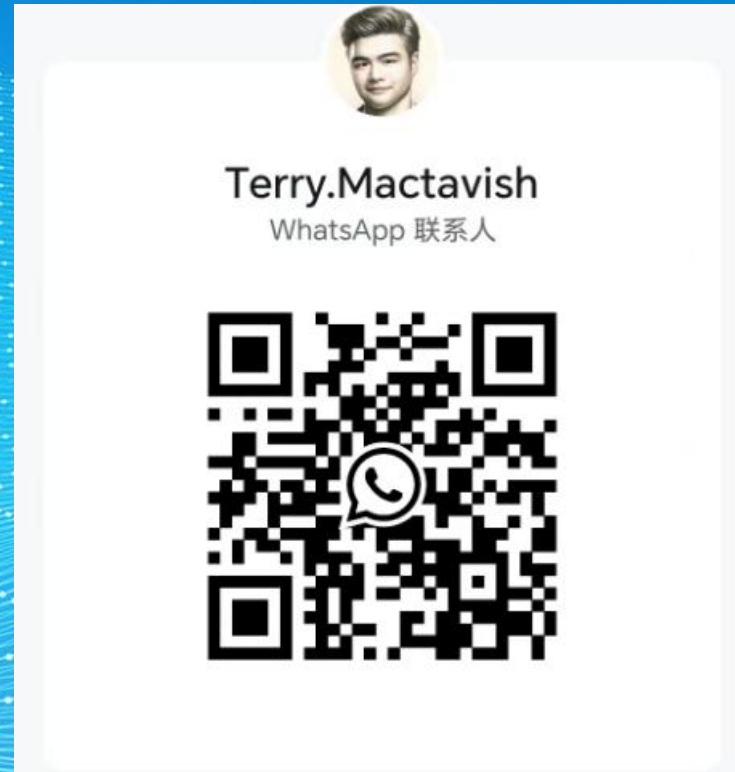
Product Information:

Art.Code	Description	Parameter
AN80C034	Ghost Peak Trap Column, 50mm × 4.6mm	400 Bar/HPLC
AN80C035	Ghost Peak Trap Column, 30mm × 4.6mm	400 Bar/HPLC
AN80C050	Ghost Peak Trap Column, 33mm × 4.0mm	400 Bar/HPLC
AN80C039	Ghost Peak Trap Column, 50mm × 2.1mm	1000 Bar/UHPLC
AN80C053	Ghost Peak Trap Column, 33mm × 2.1mm	1000 Bar/UHPLC

Notes:

1. The impurity trapping column should not be connected after the injector; if connected after the injector, the sample may be trapped and the peak may not be visible.
2. The impurity trapping column cannot capture all impurities as there are various types of impurities in the mobile phase.
3. When the mobile phase contains ion-pair reagents, the impurity trapping column may adsorb the ion-pair reagents, which can affect the retention time or peak shape of the components. The use of ion-pair reagents is not recommended.
4. The use of the impurity trapping column may introduce some volume delay. Please use it within the acceptable range for the analysis.
5. The lifespan of the impurity trapping column varies depending on the analytical conditions (e.g., the type of mobile phase used).

Contact Us



Phone: +86 188 2709 1392

Email: chemicals_trading@126.com

Address: Rm 305, Building
Tengjundebiyiyuan,

No.1658 Gumei Road, Xuhui
District, Shanghai

www.scichrolab.com