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Welchrom® IC Pre-treatment Cartridge Care and Use Manual

1. Overview:

Developed based on the principles of solid-phase extraction, this method employs high-purity materials and utilizes the principles of reverse-phase adsorption and ion exchange. It effectively removes interfering ions from the sample matrix, including anions, cations, metal ions, and hydrophobic impurities, preventing impurities from contaminating the ion chromatography column and impacting separation efficiency. This process enhances the sensitivity of the target ions, avoids contamination of the chromatography column packing material, and improves the separation performance and lifespan of the column.

The method is simple and easy to operate, allowing liquid samples or extracted solutions to be directly pushed through the small column under pressure to achieve purification effects.

2. Product Advantages:

The cartridge has a high loading capacity of packing material, effectively removing impurities.

The cartridge adopts a unique binding method, capable of withstanding high pressure, preventing column collapse and leakage.

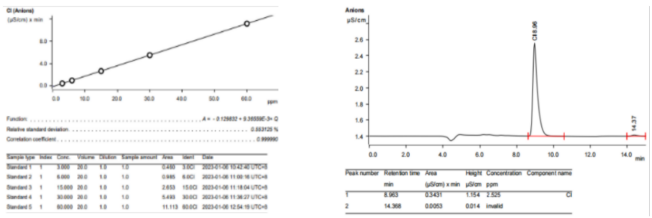
The packing material exhibits high cleanliness, resulting in an extremely low residual ion concentration, ensuring accuracy.

3. Application comparison table:

Type	Functional group	Application	Activating solvent	Baseline detection
RP	Styrene-divinylbenzene	Removal of hydrophobic compounds within a pH range of 1-14.	5mL of methanol 10mL of high-purity water.	When detecting low-concentration samples, after flushing with the activating solvent, a blank determination should be conducted using 2mL of high-purity water. If the background is excessively high, it is necessary to perform an additional flush.
H	Sulfonic acid	Removal of cations (metal ions) and adjust the pH of the sample	10mL of high-purity water (flow rate less than 3mL/min).	
Ag	Ag^+ type sulfonate	Removal of Cl^-, Br^-, I^-, CrO_4^{2-}, PO_4^{2-} plasma		
Na	Na^+type sulfonate	Remove alkaline earth metal and transition metal ions		
Ba	Ba^{2+} type sulfonate	Remove SO_4^{2-} ions		

Note: The example provided pertains to the treatment of a 5mL sample solution

4. Application Cases



Chloride Ion Standard Curve

When a chloride ion solution with a concentration of 6000ppm passes through the IC-Ag cartridge, the removal rate of chloride ions reaches over 99.9%, which is a remarkable effect.

5. Shelf Life and Storage Conditions:

The shelf life of the IC-Ag cartridge is 1 year, while the shelf life of other IC cartridges is 3 years.

Storage Conditions: Cool and dry.

6. Precautions:

(1)To provide the necessary pressure and suitable flow rate for the pre-treatment cartridge, it is recommended to use a disposable syringe with a volume of 20mL.

(2)Since the pre-treatment cartridge operates based on the ion exchange principle, effective utilization of the packing material occurs when the sample flow rate is less than 2mL/min. When processing samples with concentrations less than the cartridge capacity, acceleration can be applied appropriately.

(3)During the processing of samples or standard solutions, the initial effluent should be discarded. For example, with a 5mL sample, discard the first 3mL and collect the final 2mL for ion chromatography analysis.

(4)Following the Ag cartridge, there is often an H cartridge or Na cartridge to capture any Ag^+ ions that may permeate, protecting the subsequent analytical column. Additionally, when using the Ag cartridge, the solution's pH should be below 7.0 to prevent the formation of silver oxide precipitates, which can lead to discoloration of the Ag cartridge.

Note:

After opening the packaging, please store the SPE cartridge product in a sealable aluminum foil bag. When discarding powdered filler, avoid direct contact with soil, waterways, drainage pipes, etc.

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