



HICHROM

Chromatography Columns and Supplies

SAMPLE PREPARATION Solid Phase Extraction - Overview

Catalogue 9

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- High recovery and concentration of analytes
- Highly purified extracts
- Fast sample preparation
- Ease of automation
- Reduction in organic solvent consumption

Effective sample preparation procedures improve analytical results irrespective of the final analytical technique used.

Solid Phase Extraction (SPE) is a powerful technique for sample preparation. It is used in a broad range of application areas, including environmental analyses, pharmaceutical and biochemical analyses, organic chemistry and food analyses.

SPE utilises a liquid-solid extraction separation principle in which a large particle sized sorbent is sealed into a small chromatographic column. The required analytes are then selectively removed from the column either before or after removal of interfering compounds.

The main objectives of SPE are removal of interfering matrix components and selective concentration and isolation of the analytes of interest. This enables improved qualitative or quantitative analyses by GC, HPLC or other chromatographic techniques. Enrichment can increase detection sensitivity by a factor of 100 to 5000, which is particularly beneficial for trace analyses. Figures 1 and 2 below illustrate the two general separation procedures.

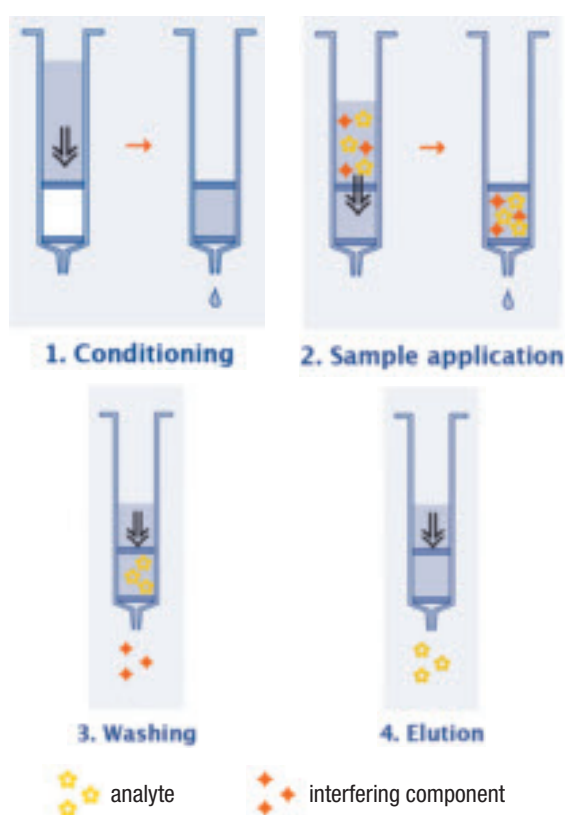


Figure 1. Retention of the analyte

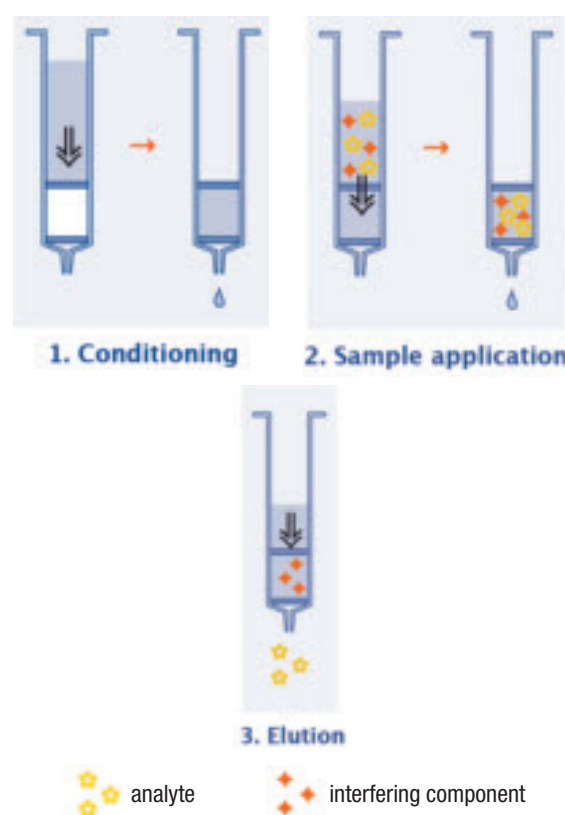


Figure 2. Retention of the interfering components

Retention of the analyte

- Analyte molecules are enriched on the adsorbent
- Interfering components and solvent molecules (matrix) are not retained
- Remaining interfering components are washed from the adsorbent
- The analyte is removed from the adsorbent by elution with a suitable solvent

Retention of interfering components

- Analyte molecules show no interaction with the adsorbent
- Interfering components and solvent molecules (matrix) are retained
- Analyte molecules are 'washed' from the adsorbent
- The solid phase is simply used to 'filter' the sample

Hichrom offers several ranges of SPE products. Please enquire about product ranges not discussed on the next few pages.