



Solid Phase Extraction for micro/nano HPLC / CE / CEC Proteomics



Description

Solid Phase Extraction is frequently used as a sample preparation procedure in Micro and Nano analyses. This technique provides a broad variety of techniques for sample adsorption and desorption when working with small sample masses and volumes and is possible because the samples can be handled and manipulated in extremely small pipette tips. A broad range of different designs have been developed for small sample volumes and sample masses as described below:

Description	Max. binding capacity	Weight of SPE material
NuTip (1-10 µl)	1-2 Microgramm	30 Microgramm
NuTip (10-200 µl)	2-4 Microgramm	75 Microgramm
TopTip (1-10 µl)	400 Microgramm	4 Milligramm
TopTip (10-200 µl)	1000 Microgramm	10 Milligramm
SyringeTip	0.5 Microgramm	15 Microgramm
LC Fiber	1.0 Microgramm	25 Microgramm

NuTip

The extraction material is immobilized in the pipette tip inner wall. These tips do not include a filter or polymeric bed and therefore provides the following benefits:

1. no contamination of the sample with foreign monomers or polymers
2. extremely quick sample preparation with minimal sample loss
3. sample volumes as low as 0.1 µl can be handled.
4. Available in two sizes - for volumes from 0.1 to 10 µl and 10-200 µl

TopTip

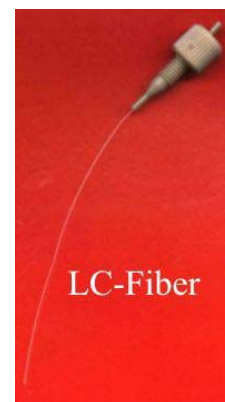
TopTip columns are standard columns that are filled with extraction material (instead of pipette tips). The user simply places a layer of the sample on the filter on the top of the column. The exit of the column includes a 1-2 µm filter so that the packing material cannot exit the column.

These tips contain considerably more packing material and are designed for separation of larger sample volume or for more difficult separations. TopTips can be delivered with a large number of different column packings so that they can be used for a broad range of applications.

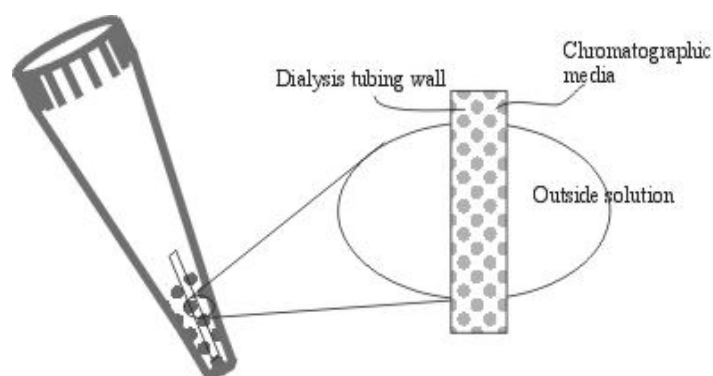
LC-Fiber

The LC-Fiber is a PP or FEP capillary that is similar in nature to the NuTip. It has a 50 μm ID and the SPE material is immobilized in it. While the LC-Fiber is commonly used as a solid phase extractor it can also be employed for CE, CEC, Nano- or Micro-HPLC.

Since this system does not have a filter, it can be used to work with very small volumes and the resistance to flow is relatively small.



DiaChrom



DiaChrom-Tips are the latest development on this field. A common TopTip is here equipped additionally with a dialysis tubing. The sample preparation follows two different methods:

1. Size exclusion
2. Adsorption or other mechanism like adsorption or affinity

Depending on "**M**olecular **W**eight **C**ut**O**ff" (MWCO) of bio-molecules like DNA, Proteins, Peptides, they may enter in the tip or excluded depending on their MWCO. Usually only small molecules can diffuse in the inner section of the tip and come in touch with the SPE material. On this way two separation modes complete to an orthogonal separation. This results a very specific condition of SPE.

Enzyme-in-a-Tip

These Tips contain different enzymes, which are immobilized on a SPE material. So enzyme reactions can be performed very fast and easily without sample loss. A self digestion of enzymes like Trypsin is significantly reduced by immobilization. The user may choice between NuTip or also TopTip.

Further information are available on the web sites of Glygen www.glygen.com or of SunChrom as PDF files.