

Product Information

Supel-Tips Zr Pipette Tips

Product code: 54266-U (96 pk)

Store at Room Temperature

Product Description

The Supel-Tips Zr pipette tips are designed to extract, concentrate and/or purify phosphopeptides. These 10 µL pipette tips contain a 300 Å zirconia adsorbent bed at the working end of tip. The bed works as the solid phase extraction media to adsorb molecules of interest from the matrix. The adsorbed species are eluted for analysis. These tips can be used for sample preparation in the LC or LC-MS, MALDI MS and other analytical methods.

This product has been developed to function effectively with sample volumes ranging from 0.5-10 µL with fast and effective analyte transport.

Components

Supel-Tips Zr Pipette Tips contain the following components.

- P10 polypropylene micropipette tips
- Zirconia-silica composite adsorbent
- 50-60 µM particle size
- Pore size is 300 angstroms
- Proprietary adhesives
- Proprietary composite particles

Precautions and Disclaimer

This product is for laboratory research use only, not for drug, household or other uses. Please consult Material Safety Data Sheet for information regarding hazards and handling practices.

Preparation and Procedure

I. Sample Preparation Procedure for Binding Capacity

A typical sample preparation procedure is discussed below. Further optimization may be required depending on the application.

Standard sample: Phosphopeptide 10 pg/µL with 3.3% formic acid (pH=2.0)

1. Attach a Supel-Tip to a 10 µL pipettor.
2. Depress plunger and aspirate 10 µL of 3.3% Formic acid (pH=2.0), then dispense.
3. Repeat step 2 - 3X.

4. Draw 10 µL of the phosphopeptide standard/sample solution (20 µL in a micro-centrifuge tube). Keep the tip submerged in the sample solution.
5. Repeat step 4 – 9X (i.e., 10 cycles of aspiration/dispensing).
6. Remove the tip from the standard micro-centrifuge tube.
7. Aspirate 10 µL DI water, then dispense to waste.
8. Repeat step 7 – 1X.
9. Add 10 µL (or 20 µL) of eluent (0.5% piperidine, pH = 11.5) to an autosampler vial.
10. Draw 10 µL of the eluent into the pipette tip. Keep the tip submerged in the eluent.
11. Keeping the tip submerged in the eluent, dispense the 10 µL of eluent back to the autosampler vial.
12. Repeat steps 10 and 11 - 2X, therefore, aspirating/dispensing the eluent to and from the same sample vial a total of 3X.
13. Discard the Supel-Tip.
14. Cap vial for analysis. Label vial appropriately.

II. HPLC Method

1. HPLC procedure:

Parameters	Description
Instrument	HP 1100
Mobile Phase	10:90 Acetonitrile-water to 50:50 (5 minutes)
Flow Rate	1.0 mL/min.
Wavelength	210 nm
Column	Discovery BIO Wide Pore C8
Injection Volume	5 µL
Temperature	30 °C
Detector	UV

2. MALDI Procedure:
Refer to the review article mentioned below for specifics concerning the use of small sample volume followed by MALDI-TOF analysis.

Reference

H.K. Kweon and K. Hakansson, "Selective Zirconium Dioxide-Based Enrichment of Phosphorylated Peptides for Mass Spectrometric Analysis". *Analytical Chemistry*, 2006, 78, 1743.

Chemical Compatibility Method

Chemical compatibility is determined as follows. The tip is equilibrated with 10 µL volume of 70:30 acetonitrile-water (with 0.1%TFA) by drawing and discarding three times. The tip is inspected under magnifying glass for its initial condition. Then the chemical/solvent to be tested is drawn and discarded, using 10 µL volume, 10 times. Finally, another 10 µL volume is drawn into the tip and left static for two minutes. At the end of two minutes the liquid inside the tip is discarded and rinsed three times with the 70:30 acetonitrile-water (0.1%TFA). The tip is inspected under magnifying glass again for evidence of physical damage.

The draw speed of 70:30 acetonitrile-water (0.1% TFA) before and after chemical exposure is compared. If no changes in physical characteristics and draw speed are observed, the tip is compatible with the chemical.

Results

I. Binding Capacity

Representative Recovery data:

Probe name	Binding Capacity (µg/tip)
MPP1	1.0 µg

II. Chemical Compatibility

List of chemicals that are compatible with Supel-Tips Zr Pipette tips.

Solvent/chemical	Compatible (yes/no)
Acetic acid	no
Acetic acid (10%)	yes
Acetone	yes
Acetonitrile	yes
Ammonium hydroxide (28%)	yes
Benzene	yes
Benzyl alcohol	yes
Butyl alcohol	yes
Carbon tetrachloride	yes
Chloroform	yes
Dichloromethane	yes
Diethanolamine	yes
Dimethyl formamide	yes
Ethyl alcohol (200 proof)	yes
Formic acid (96%)	yes
Guanidine HCl (6 M)	yes
Hydrochloric acid	no
Hydrochloric acid (1%)	yes
Isopropyl alcohol	yes
Mercaptoethanol	yes
Methyl alcohol	yes
Methyl ethyl ketone	yes
Nitric acid (1%)	yes
Nitric acid (concentrated)	yes
o-xylene	yes
Phenol (0.5%)	yes
Phosphoric acid (concentrated)	yes
Sodium hydroxide (1 M)	yes
Sulfuric acid (1%)	yes
Tetrahydrofuran	yes
Toluene	yes
Trifluoroacetic acid (10%)	yes
Urea (6 M)	yes

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