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Product Information

Supel-Tips™ Carbon Micropipette Tips

Product Code **54227-U and 54228-U**

Store at Room Temperature

Technical Bulletin

Product Description

The Carbon Micropipette tips are designed to extract, concentrate and/or purify oligosaccharides. These 10 µL pipette tips contain a graphitized polymer carbon adsorbent bed at the working end of the tip. The bed acts as a solid phase extraction medium to adsorb oligosaccharides and other macromolecules containing sugar moieties. These tips can be used for the sample preparation/cleanup prior to HPLC, LC-MS, ALDI MS, and other analytical techniques.

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 Carbon contain the following components.

- P10 (10 µL) polypropylene micropipette tips
- Graphitized carbon adsorbent
- 50-60 µm particle size
- Average pore size is 175 Å
- Proprietary adhesives

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

A. Preparation Method for the Determination of Binding Capacity

Standard sample: Maltohexaose 10 mg/mL with 100 mM ammonium acetate

1. Firmly attach a Supel-Tips Carbon tip to a 10 µL pipettor.
2. To displace the air trapped in the sorbent bed, pre-wet the tip with 10 µL 100% acetonitrile two times (2 x 10 µL).
3. To remove residual wetting solution, wash three times with ultra pure DI water.
4. To bind the sample solution, perform a series of aspirate and dispense cycles (draw in 10 times and dispense 10 times) with 50 µL sample standard solution (10x draw and 10x delivery).
5. For HPLC, elute with 5 x 10 µL water and collect in an HPLC vial.
6. Analyze all samples using HPLC-ELSD, LC-MS or other suitable analytical method.

Table 1. Representative Recovery Data for a Maltohexaose Standard

Probe Name	Binding Capacity (µg/tip)
Maltohexaose	10.2

B. Preparation Method for Glycoproteins

Glycoprotein Sample(s)

1. Firmly attach a Supel-Tips Carbon tip to a 10 µL pipettor.
2. To displace the air trapped in the sorbent bed, pre-wet the tips with 10 µL 100% acetonitrile two times (2 x 10 µL).
3. To remove residual wetting solution, wash three times with ultra pure DI water.
4. To bind the sample solution, perform a series of aspirate and dispense with 20 µL (or 50 µL) glycoprotein sample (10x draw and 10x delivery).
5. For HPLC, elute with 5 x 10 µL 70% 5mM ammonium acetate (pH = 8.5)/30% acetonitrile, and collect in an HPLC vial.
6. Analyze all samples using HPLC-MS or suitable analytical method.

C. Preparation Method for Oligosaccharides (General)

Oligosaccharides Sample(s)

1. Firmly attach a Supel-Tips Carbon tip to a 10 µL pipettor.
2. To displace the air trapped in the sorbent bed, pre-wet the tips with 100% acetonitrile two times (2 x 10 µL).
3. To remove residual wetting solution, wash three times with ultra pure DI water.
4. To bind the sample solution, perform a series of aspirate and dispense cycles with 20 µL oligosaccharide sample (10x draw and 10x delivery).
5. For HPLC, elute with 5 x 10 µL 70% 5 mM ammonium acetate (pH = 8.5)/30% acetonitrile (based on experimental results, ratios of 70:30 to 100:0 of the eluent solution may be used), and collect in an HPLC vial.
6. Analyze all samples using HPLC-MS or suitable analytical method.

D. 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 a magnifying glass for its initial conditions. 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 a 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.

References

1. N. Kawasaki, Division of Biological Chemistry and Biologicals, National Institute of Health Sciences, 1-18-1, Kamiyoga, Setagaya-ku, Tokyo, Japan, correspondence with author, February, 2007.
2. N. Kawasaki, S. Itoh, M. Ohta and T. Hayakawa, Microanalysis of N-linked oligosaccharides in a glycoprotein by capillary liquid chromatograph/mass spectrometry and liquid chromatography/tandem mass-spectrometry, Anal. Biochem. 316 (2003) 15-22.
3. G. Siuzdak, Mass spectrometry for biotechnology, Academic Press (San Diego, CA) 1966. (Product code Z371920).
4. R.L. Cunico, et. al., Basic HPLC and CE of biomolecules, Bay Bioanalytical Laboratory (Richmond, CA) 1998.

Table 2. List of Chemicals that are Compatible with Carbon Supel-Tips Micropipette 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	no
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%)	no
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 (1M)	yes
Sulfuric acid (1%)	yes
Tetrahydrofuran	yes
Toluene	yes
Trifluoroacetic acid (10%)	yes
Urea (6M)	yes