



## **HyperSep™ Tip Instructions for Porous Zirconium Dioxide (Part Number 60109-217)**

**APPLICATIONS:** Titanium dioxide surface is comprised of both acidic as well as basic adsorption sites. There are a number of substances which bind strongly on the zirconium dioxide surface e.g. chelating agents such as hydroquinoline, phosphate etc. This special selectivity arising from the co-ordinative binding capacity of the zirconium ion may be utilized in highly selective sample preparation. The estimated capacity of this item is 50µg, of ZrO<sub>2</sub> and sample volumes in the range 1-20µL or larger.

### **Recommended Buffers and Solvents:**

- i. Binding solution for conditioning step - 50mM formic acid
- ii. Load buffer according to application (0.3-2% HCOOH)
- iii. Wash buffer – water or 0.3-2% HCOOH
- iv. Elution buffer: NH<sub>4</sub>OH (pH9.5-11)

The above buffers are recommendations, you may wish to use different buffers according to your application.

### **Conditioning Procedure:**

Attach the HyperSep™ Tip to a micropipette and aspirate/expel 1-10µL of an appropriate binding solution, such as 50mM formic acid 5 times. Now force air (micropipette) through the HyperSep Tip to remove excess buffer.

### **Sample Binding**

Step 1: Wash with the load buffer 3 times according to application or references.

Step 2: Aspirate/expel the sample (0.1-10µL) 50 times to allow the peptides to adsorb to the ZrO<sub>2</sub> material.

### **Sample Washing:**

Aspirate/expel 2-10µL volumes of the wash buffer 10 times, discarding the expelled solution each time. This will eliminate salts, lipids and detergents.

### **Sample Release:**

Aspirate/expel 0.5-10µL of elution buffer 10 times, collecting the expelled solution in a suitable clean tube. Repeat with a fresh portion of elution buffer if you want to release and collect all of the adsorbed peptide or protein. Neutralise the NH<sub>4</sub>OH solution with HCOOH, as keeping the peptide in NH<sub>4</sub>OH solution can lead to hydrolysis of the phosphate group. Evaporate the solvent or proceed directly to the next analysis

### **Options:**

Samples larger than 10µL can be processed with these tips if peptide or salt concentrations are low. Otherwise, use items 60109-424 or 60109-425.