

AttractSPE® Disks Chelating for metal removal and analysis in large volume samples



PROTOCOL OF PURIFICATION

Sample preparation

Non spiked sample (Blank control)

500 mL of reagent water (the pH is checked, and the solution is adjusted with ammonia solution if the pH is under 5).

Spiked sample

500 mL of reagent water is spiked at 0.1 mg/L with cadmium, chromium, copper, magnesium, nickel, lead, zinc, and at 1mg/L with calcium. The solution is put to pH>5 with concentrated ammonia solution.

It is essential for all the reagents used to be free of metal of interest (or at negligible concentrations).

Solid phase extraction with AttractSPE® Disks Chelating

Equilibration

- 20 mL Nitric Acid 3M in water (let the disk soak for 1 min)
- 2x50 mL Ultrapure water
- 100mL Ammonium Acetate 100mM pH= 5.3

Loading

- 500 mL of the loading solution (pH > 5) in 10 min

Washing of interferences (W1)

- 20 mL ultrapure water

Drying by applying vacuum 30 seconds

Elution (E)

- 20 mL Nitric acid 3M in water

The elution fraction was analysed by ICP-AES.

RESULTS

Metal	AttractSPE® Disks Chelating Not spiked solutions	AttractSPE® Disks Chelating Spiked solutions		
	Measured concentration	Concentration of spiked sample	Measured concentration*	Recovery %
Cadmium (Cd)	<0.005 mg/L	0.1 mg/L	2.39 mg/L	96%
Calcium (Ca)	<1 mg/L	1 mg/L	22.28 mg/L	89%
Chromium (Cr)	<0.005 mg/L	0.1 mg/L	2.12 mg/L	85%
Copper (Cu)	0.05 mg/L	0.1 mg/L	2.18 mg/L	87%
Magnesium (Mg)	0.02 mg/L	0.1 mg/L	2.28 mg/L	91%
Nickel (Ni)	<0.005 mg/L	0.1 mg/L	2.34 mg/L	94%
Lead (Pb)	<0.005 mg/L	0.1 mg/L	2.08 mg/L	83%
Zinc (Zn)	<0.02 mg/L	0.1 mg/L	2.02 mg/L	81%

(*) Concentration measured in the 20 mL elution fraction (concentration of sample from 500mL to 20 mL)

The analyses were carried out by an external COFRAC laboratory (Accreditation N° 1- 1488)

CONCLUSIONS

AttractSPE® Disks Chelating shows excellent recovery yields from 81% to 96% with a short time loading (10min -500mL). This disks are suitable either for metal trace analysis or for metal removal.

Catalog number:

AttractSPE® Disks Chelating

SPE-Disks-MET-25.T1.40 for 40/pk – 25mm
 SPE-Disks-MET-47.T1.20 for 20/pk – 47mm
 SPE-Disks-MET-90.T1.10 for 10/pk – 90mm