

VA Application Note No. V - 86

Title: Cadmium, lead, and copper in drinking water

Summary: Cd, Pb, and Cu can be determined in one run in acetate buffer with anodic stripping voltammetry (ASV).

Sample: drinking water

Sample preparation: none

Cd, Pb, Cu

Electrolyte acetate buffer pH 4.6:
c(acetic acid) = 2 mol/L + c(NH₃) = 1 mol/L
KCl solution
c(KCl) = 3 mol/L

Measuring solution 10 mL drinking water
+ 0.5 mL acetate buffer
+0.1 mL KCl solution
pH = 4.6

Working electrode (WE) MME (Multi Mode Electrode) 6.1246.020

Auxiliary electrode (AE) Pt: 6.0343.000

Reference electrode (RE) Ag/AgCl/KCl (3 mol/L): 6.0728.020 + 6.1245.010

Parameters

Working electrode	HMDE
Stirrer speed	2000 rpm
Mode	DP
Purge time	300 s
Deposition potential	-900 mV
Deposition time	60 s
Equilibration time	10 s
Pulse amplitude	50 mV
Start potential	-900 mV
End potential	+100 mV
Voltage step	6 mV
Voltage step time	0.2 s
Sweep rate	30 mV/s

Peak potential Cd	-580 mV
Peak potential Pb	-370 mV
Peak potential Cu	-60 mV

Results:	Cd	Pb	Cu
	67 ng/L	1.7 µg/L	38 µg/L

Determination of Cd, Pb, Cu

