

VA Application Note No. V - 168

Title: Lead in a phosphatation bath

Summary: The concentration of Pb in a Zn phosphatation bath is determined by anodic stripping voltammetry (ASV) in HCl electrolyte.

Sample: Zn phosphatation bath

Sample preparation: None

Analysis of Pb

HCl solution w(HCl) = 30%

Measuring solution 10 mL H₂O
+ 1 mL HCl solution
+ 1 mL phosphatation bath

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

Auxiliary electrode (AE) Pt 6.0343.000

Reference electrode (RE) Reference system: Ag/AgCl/KCl (3 mol/L) 6.0728.020
Intermediate electrolyte: c(KCl) = 3 mol/L 6.1245.010

Parameters

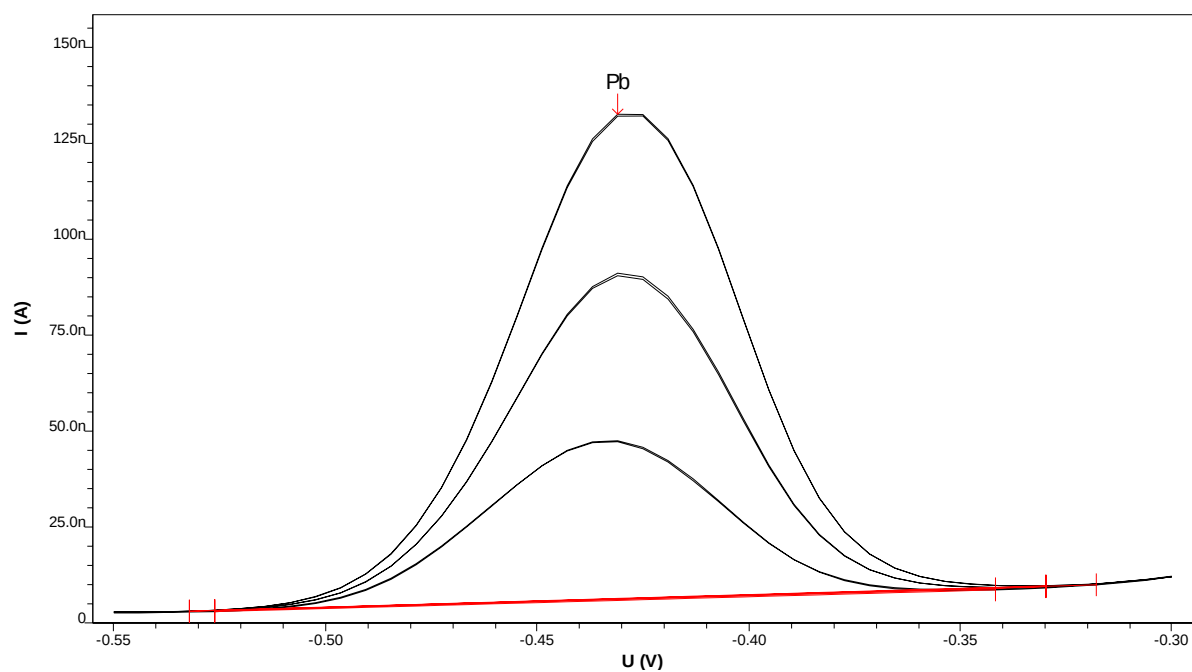
Working electrode	HMDE
Stirrer speed	2000 rpm
Mode	DP
Purge time	300 s
Deposition potential 1	-0.6 V
Deposition time 1	60 s
Deposition potential 2	-0.5 V
Deposition time 2	30 s
Equilibration time	5 s
Pulse amplitude	0.05 V
Start potential	-0.55 V
End potential	-0.3 V
Voltage step	0.006 V
Voltage step time	0.6 s
Sweep rate	0.01 V/s
Peak potential Pb	-0.43 V

Results:

Pb

243.1 µg/L

Determination of Pb



Pb
 $c = 243.095 \text{ } \mu\text{g/L}$
 $\pm 2.069 \text{ } \mu\text{g/L} \text{ (0.85\%)}$

