

VA Application Note No. V - 173

Title: Lead in zinc plant electrolyte

Summary: The concentration of Pb in zinc sulfate solution is determined by anodic stripping voltammetry (ASV) in hydrochloric acid electrolyte.

Sample: Neutral zinc sulfate solution

Sample preparation: None

Analysis of Pb

HCl solution w(HCl) = 30%

Measuring solution 10 mL H₂O
+ 1 mL HCl solution
+ 2 mL zinc sulfate solution

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

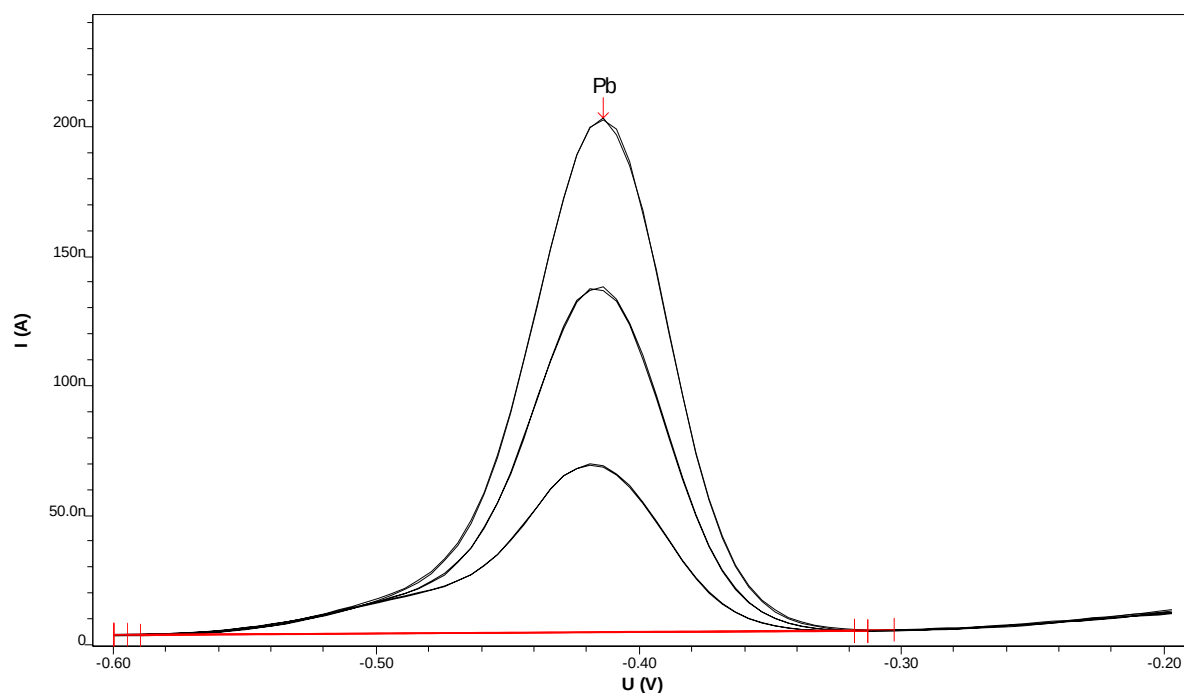
Working electrode	HMDE
Stirrer speed	2000 rpm
Mode	DP
Purge time	300 s
Deposition potential	-0.5 V
Deposition time	30 s
Equilibration time	5 s
Pulse amplitude	0.05 V
Start potential	-0.6 V
End potential	-0.2 V
Voltage step	0.005 V
Voltage step time	0.2 s
Sweep rate	0.025 V/s
Peak potential Pb	-0.42 V

Results:

Pb

241.9 µg/L

Determination of Pb



Pb
c = 241.865 $\mu\text{g/L}$
+/- 2.165 $\mu\text{g/L}$ (0.90%)

