

VA Application Note No. V - 100

Title: Nickel and cobalt in triphosphate

Summary: Ni and Co are determined in triphosphate with adsorptive stripping voltammetry (AdSV) in ammonia buffer at pH 9.5 with addition of dimethylglyoxime (DMG).

Sample: pentasodium triphosphate

Sample preparation:

Analysis of Ni, Co

Electrolyte ammonia buffer:
 $c(\text{HCl}) = 1 \text{ mol/L} + c(\text{NH}_3) = 3 \text{ mol/L}$
 DMG solution:
 $c(\text{dimethylglyoxime disodium salt}) = 0.1 \text{ mol/L}$ in water

Measuring solution 10 ml water
 + 250 mg sample
 + 1 mL ammonia buffer
 + 50 μL DMG solution
 → pH 9.5

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

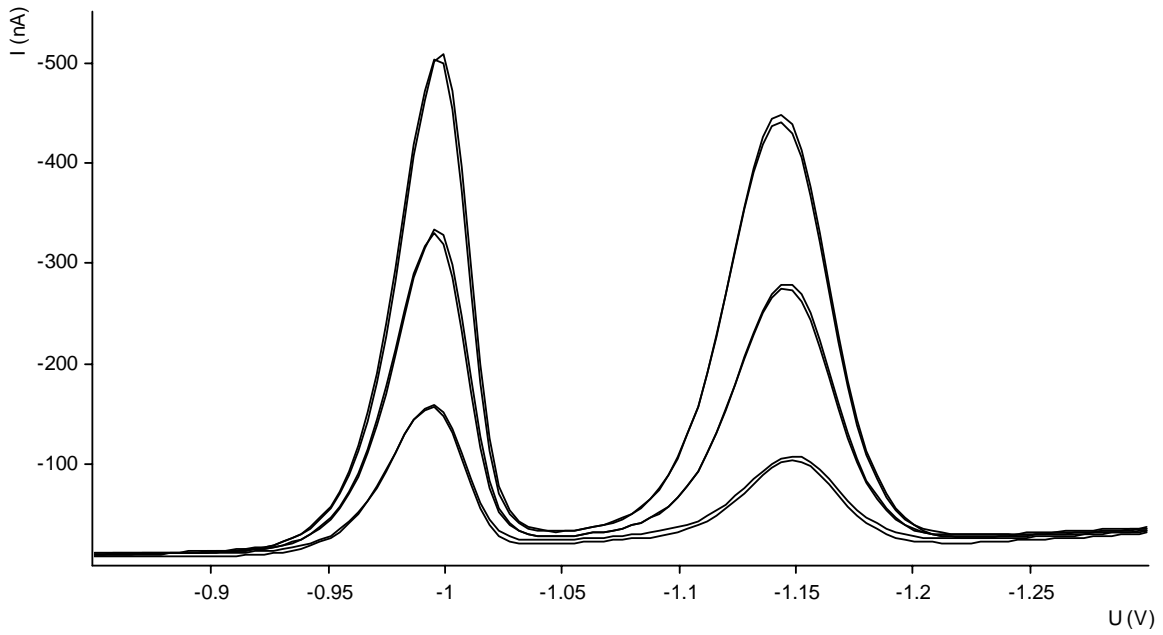
Parameters

Working electrode	HMDE
Stirrer speed	2000 rpm
Mode	DP
Purge time	300 s
Deposition potential	-700 mV
Deposition time	60 s
Equilibration time	10 s
Pulse amplitude	70 mV
Start potential	-850 mV
End potential	-1300 mV
Voltage step	4 mV
Voltage step time	0.3 s
Sweep rate	13.3 mV/s
Peak potential Ni	-990 mV
Peak potential Co	-1150 mV

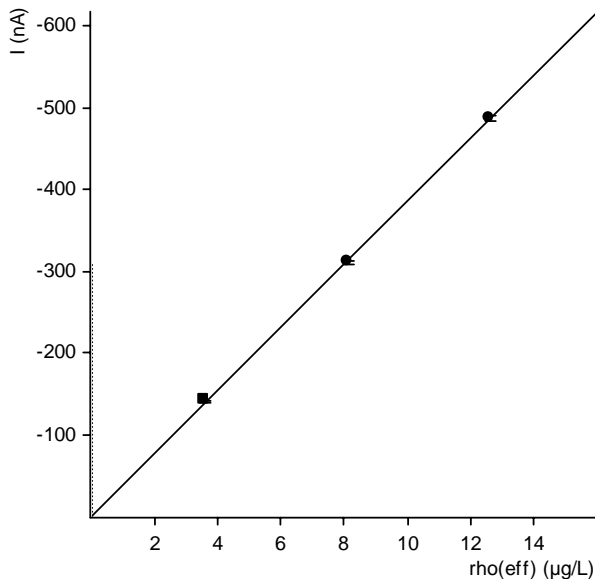
Results:	Ni	Co
	160 ng/g	93 ng/g

Determination of Ni, Co

Segment: CSV VR(**)



Standard addition curve: Ni



Standard addition curve: Co

