

VA Application Note No. V- 28

Title:	Zinc, cadmium, lead, nickel and cobalt in hydrochloric acid
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Summary:	Determination of Zn, Cd, Pb, Ni and Co in hydrochloric acid (37.8%).
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Sample:	Hydrochloric acid 37.8%
Sample Preparation:	Neutralisation to pH 5-7 with NaOH.

Zinc, cadmium and lead:	
Electrolyte:	Buffer NH ₄ Ac
AE:	Pt
RE:	Ag/AgCl/KCl 3M
Parameters:	DPASV (+50 mV), HMDE $U_{\text{meas}} = -1150 \text{ mV (180s)}$, $U_{\text{start}} = -1150 \text{ mV}$, $U_{\text{end}} = -300 \text{ mV}$ $E_p(\text{Zn}) = -960 \text{ mV}$, $E_p(\text{Cd}) = -580 \text{ mV}$ $E_p(\text{Pb}) = -380 \text{ mV}$

Nickel and cobalt in the same vessel:	
Electrolyte:	Addition of dimethylglyoxime in triethanol amine and NH ₄ Cl buffer (same vessel)
AE:	Pt
RE:	Ag/AgCl/KCl 3M
Parameters:	DPCSV (-75 mV), HMDE $U_{\text{meas}} = -600 \text{ mV (40s)}$, $U_{\text{meas}} = -800 \text{ mV (20s)}$, $U_{\text{start}} = -800 \text{ mV}$, $U_{\text{end}} = -1000 \text{ mV}$ $E_p(\text{Ni}) = -960 \text{ mV}$, $E_p(\text{Co}) = -1050 \text{ mV}$

Results:	Zn µg/L	Cd µg/L	Pb µg/L	Ni µg/L	Co µg/L
	154	0.2	172	16.3	1.07

