VA Application Note No. V- 15

Title:	**Nickel, antimony, cadmium, thallium and copper in a neutral, highly concentrated Zn solution**

***Summary*:**	Determination of Ni, Sb, Cd, Tl and Cu in a neutral, highly concentrated zinc solution from the plating industry

Sample:	Zn electrolyte 130-170g/L, Mn 5-10g/L, Mg 5-10g/L
Sample Preparation:	none

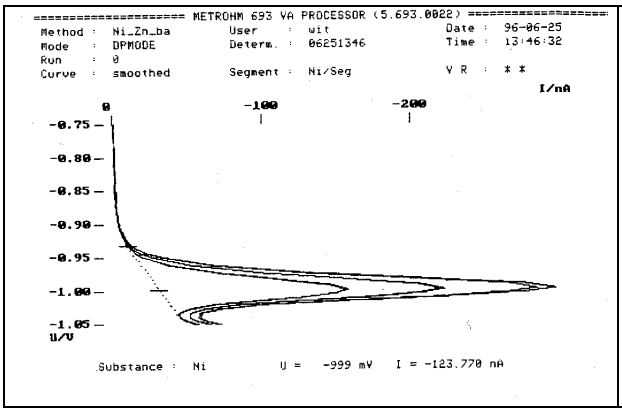
Nickel:	
Electrolyte:	Dimethylglyoxime (DMG), NH_4Cl buffer, ascorbic acid, NH_3, pH = 9.9
AE:	Pt
RE:	Ag/AgCl/KCl 3M
Parameters:	DPCSV (-50 mV), HMDE U_{meas} = -750 mV (30s), U_{start} = -750 mV, U_{end} = -1100 mV Ep (Ni) = -1000 mV

Antimony:	
Electrolyte:	HCl
AE:	Pt
RE:	Ag/AgCl/KCl 3M
Parameters:	DPASV (+50 mV), HMDE U_{meas} = -250 mV (180s), U_{start} = -250 mV, U_{end} = -50 mV Ep (Sb) = -150 mV

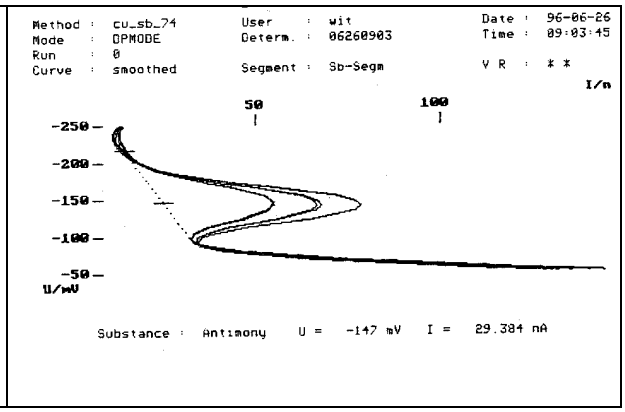
Cadmium, thallium and copper:	
Electrolyte:	HCl, $KMnO_4$, ascorbic acid
AE:	Pt
RE:	Ag/AgCl/KCl 3M
Parameters:	DPASV (+50 mV), HMDE U_{meas} = -800 mV (60s), U_{start} = -800 mV, U_{end} = 0 mV Ep (Cd) = -580 mV, Ep (Tl) = -450 mV, Ep (Cu) = -120 mV

Results:	Ni µg/L	Sb µg/L	Cd µg/L	Cu µg/L	Tl µg/L
	494	**5**	**7.2**	**< 1**	**208.8**

Determination of nickel



Determination of antimony



Determination of cadmium, thallium and copper