VA Application Note No. V- 26

Title:	**Iron and zinc in a nickel sulphate bath containing surfactants**

***Summary*:**	Determination of Fe and Zn after UV digestion in a nickel sulphate bath containing surfactants

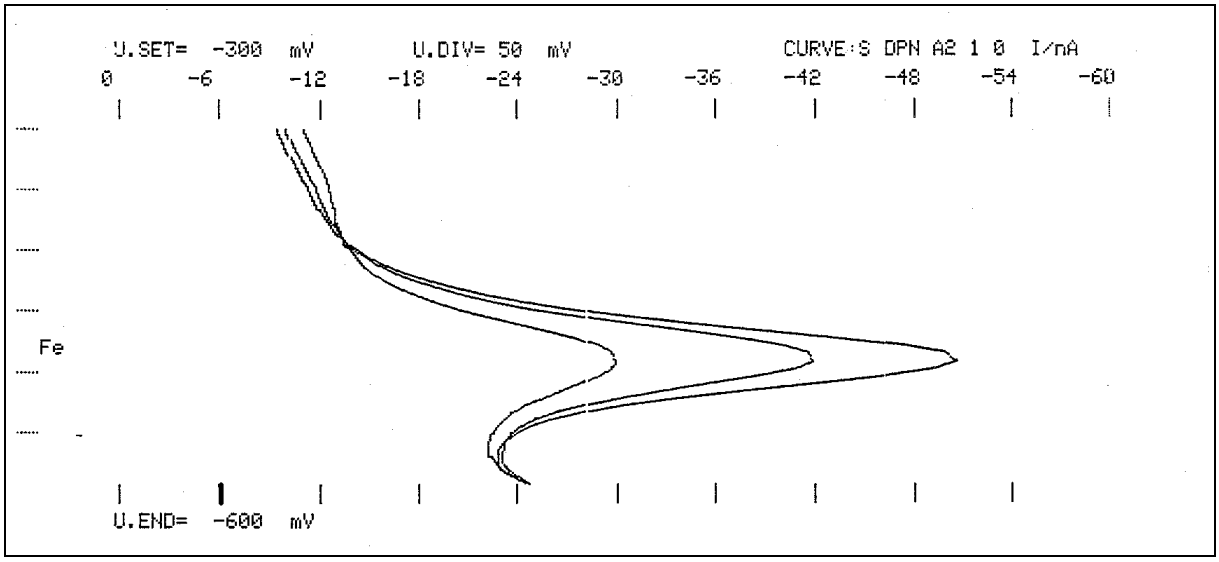
Sample:	Nickel sulphate plating bath
Sample Preparation:	UV digestion for Fe determination

Iron:	
Electrolyte:	Catechol and Pipes buffer pH = 7.0 ± 0.1
AE:	Pt
RE:	Ag/AgCl/KCl 3M
Parameters:	DPCSV (-50 mV), HMDE U_{meas} = -300 mV (90s), U_{start} = -300 mV, U_{end} = -600 mV Ep (Fe) = -450 mV

Zinc:	
	A defined amount of the Ni bath is mixed with an amount of EDTA which is equivalent to the content of Ni. The pH value is adjusted to 10.3 with NH_3 10 %. Ca ions are added instead of standard addition. In the first step Ca replaces Zn in the EDTA complex and the Zn peak grows. Further addition leads to substitution of Ni by Ca in the EDTA complex. The growth of the Ni peak indicates that all the Zinc is set free and that the normal Zn determination can start.
Electrolyte:	EDTA, NH_3, $Ca(NO_3)_2$
AE:	Pt
RE:	Ag/AgCl/KCl 3M
Parameters:	DPPOL (-50 mV), SMDE U_{meas} = -600 mV (3s), U_{start} = -600 mV, U_{end} = -1400 mV Ep (Zn) = -1280 mV

Results:	**Fe** µg/L	**Zn** mg/L
	278	**2.5**

Determination of iron



Determination of zinc