Platinum

Function: Differential Pulse Voltammetry (DPV/a)

Start Potential (mV)	0
End Potential (mV)	-1000
Current range	10.24
Scan Speed (mV/s)	50
Number of cycles	1
Delay before sweep (s)	5
Purge and stir time (s)	300
Stirring speed (rpm)	300
Drop Size (a.u.)	60

Platinum concentrated standard Solution (1 g/l)
Dissolve 0.1 g of pure Pt in 5 ml of aqua regia (37% HCl + 65% HNO_3, 3+1, v/v). Dry and add 5 ml of 37% HCl and 0.1 g of NaCl. Dry again. Add 20 ml of 6 M HCl 1+1 to the residue and bring to volume in a 100 ml volumetric flask with distilled water.

Reagents
1- **96% H_2SO_4**
2- **66 mM Formaldehyde solution**. Dilute 0.5 ml of 36.5% formaldehyde in 100 ml of distilled water.
3- **120 mM Hydrazine sulphate solution**. Dissolve 1.56 g of hydrazine sulphate in 100 ml of distilled water.

Procedure
Add to 10 ml of sample, 0.32 ml of 96% H_2SO_4, deaerate for 5 minutes. Add 100 µl of 66 mM Formaldehyde solution and 100 µl of 120 mM Hydrazine sulphate solution.

Diluted standard solution (1 mg/l)
Dilute 1 + 999 the concentrated standard solution of Pt in distilled water. Prepare the solution at the moment of the analysis

Working standard solution (10 µg/l)
In a 50 ml volumetric flask, add 0.5 ml of diluted standard solution. Bring to volume with distilled water. Prepare the solution at the moment of the analysis

Platinum in airborne
Procedure
Sample the powder in the air using a cellulose filter, as described in the specific procedure for the determination of powder in air. Fold the filter and place it into the polarographic cell.

Add 2 ml of 65% HNO_3 and 2 ml of 40% H_2O_2. Let stand overnight.
Bring to dryness on a sand bath.
Add 1 ml of 65% HNO_3 and 2 ml of 40% H_2O_2 and bring to dryness again.
Repeat the treatment until residue is white (not black, nor brown, nor yellow!)
Add 10 ml of distilled water to residue, 0.32 ml of 96% H_2SO_4, deaerate for 5 minutes. Add 100 µl of 66 mM Formaldehyde solution and 100 µl of 120 mM Hydrazine sulphate solution
Alternatively, use a microwave disgestor, but bring to dryness the residue.

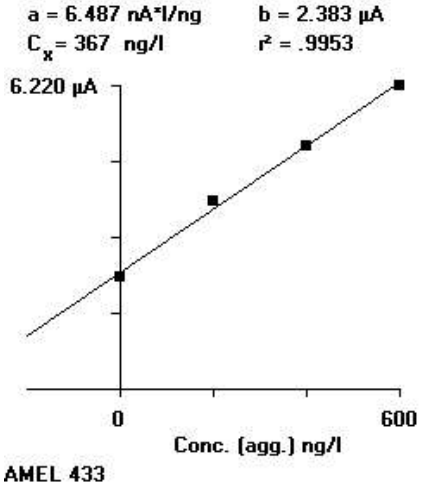
Warning
Avoid using PTFE filters because the solution, after the boiling with concentrated HCl, cannot easily be digested.

Analytical Report

Analysis: Filter n. 1

Sample Concentration = 367 ng/l in the solution
= 12.7 ng/m^3

Method: 3 addition



Volumes Table

Solvent Volume	0 (ml)
Supporting Sol.	0.52 (ml)
Sample Volume	10 (ml)
Standard Conc.	10000 (ng/l)

Height Table

#	Peak Pot.	Height
0	-788.2	2.163 µA
1	-792.1	3.581 µA
2	-788.2	4.560 µA
3	-792.1	5.593 µA

Regression Data

#	Add.Conc.	Height x dilution	
0	0 ng/l	2.276 µA	y = ax + b
1	200 "	3.839 µA	a = 6.487 nA*l/ng
2	400 "	4.980 µA	b = 2.383 µA
3	600 "	6.220 µA	r²= .9953