

Bismuth

Function: Differential Pulse Stripping Voltammetry (DPS/a)

Start Potential	(mV)	-500
End Potential	(mV)	-50
Current range		2,048 μ A
Scan Speed	(mV/s)	30
Deposition time	(s)	60
Deposition Pot.	(mV)	-500
Number of cycles		3
Delay before sweep	(s)	5
Purge and stir time	(s)	20
Stirring speed	(rpm)	500
Drop Size	(a.u.)	30

Bismuth concentrated standard solution (1 g/l)

Dissolve 1 g of Bismuth in a minimum volume of 65% HNO₃. Bring to volume in a 1 l volumetric flask with 1% HNO₃.

Supporting Electrolyte

1.4% HCl solution. Add 4 ml of 37% HCl to 100 ml of distilled water.

Procedure

Add 0.4 ml of 37% HCl to 10ml of neutralised sample.

Working standard solution (10 mg/l)

Dilute the concentrated standard solution 1+99 in distilled water, at the moment of the analysis.

Analytical report

Analysis: catalyst for polyurethane

Sample (Diluted solution) Concentration = 12.7 mg/l

Sample (concentrated solution) Concentration = 1.27 g/l

Sample concentration = $1.27 \times 50 / 10 \times 0.5 = 12.7$ g/100 g

Method: 5 additions

Volumes Table

Solvent Volume	10 (ml)
Supporting Sol.	0.5 (ml)
Sample Volume	0.3 (ml)
Standard Conc.	10 (mg/l)

Height Table

#	Peak Pot.	Height
0	-50.9	9.505 μ A
1	-47.3	13.93 μ A
2	-44.3	17.87 μ A
3	-42.8	22.91 μ A
4	-41.3	26.97 μ A

Regression Data

#	Add.Conc.	Height x dilution	
0	0 mg/l	342.2 μ A	$y = ax + b$
1	6.67 "	510.8 μ A	$a = 26.42 \mu\text{A}^*/\text{mg}$
2	13.3 "	667.2 μ A	$b = 334.5 \mu\text{A}$
3	20.0 "	870.8 μ A	$r^2 = .9983$
4	26.7 "	1.043 mA	

