



License ID 459712  
Client ID 001-cmp-00197  
User Metrohm

Program version viva 2.0 - 54 - 1  
2017-10-10 15:10:34 UTC+2

## Method parameters

Method . . . . . AB 254 Plating Hg film  
Method saving date . . . . . 2017-10-10 15:10:23 UTC+2  
Method version . . . . . 1  
Method group . . . . . viva example methods  
Method status . . . . . original  
Method saved by (full name) . . . . . Metrohm International Headquarters  
Method saved by (short name) . . . . . Metrohm

## START

### Main track

#### General

Workplace view

Current view . . . . . on

Track view for live window

Live display 1 . . . . . Main track

Live display 2 . . . . . Main track

Electrode test . . . . . on

#### Application note

Plating solution 19.4 mL ultrapure water 0.2 mL w(HCl) = 30% 0.4 mL c(Hg<sup>2+</sup>) = 1 g/L

#### Sample data variables

Name	Type	Assignment	Fixed value	Comment	Monitoring
ID1	Text	ID1	Hg film	Sample identification 1	off
ID2	Text	ID2	Electrolyte: $\beta$	Sample identification 2	off
ID3	Text	ID3		Sample identification 3	off

Name . . . . . **ID1**  
Type . . . . . Text  
Assignment . . . . . on. . . . . ID1  
Fixed value . . . . . on. . . . . Hg film plating  
Check at start . . . . . on  
Comment . . . . . Sample identification 1

Name . . . . . **ID2**  
Type . . . . . Text  
Assignment . . . . . on. . . . . ID2  
Fixed value . . . . . on, Electrolyte:  $\beta$ (Hg) = 20 mg/L, c(HCl) = 0.1 mol/L  
Check at start . . . . . on  
Comment . . . . . Sample identification 2

Name . . . . . **ID3**  
Type . . . . . Text  
Assignment . . . . . on. . . . . ID3



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Fixed value . . . . . off.  
Check at start . . . . . on  
Comment . . . . . Sample identification 3

**Command comment**

AB 254: Mercury film plating

**ADD AUX Hg plating solution**

Auxiliary solution

Solution . . . . . Hg solution  
Volume . . . . . 20 mL  
Include volume in calculation . . . . . on

Addition

Add manually . . . . . on  
Display standard message . . . . . on  
Display message defined by the user . . . . . off  
Already added . . . . . off  
Add with dosing device . . . . . off

**STIR & PURGE Initial purge**

Device

Device name . . . . . 884\_1  
Device type . . . . . 884 Professional VA

Stir

Stirring rate . . . . . 2000 min<sup>-1</sup>  
Switch on . . . . . on  
Switch off . . . . . off  
Duration . . . . . off

Purge

Switch on . . . . . off  
Switch off . . . . . off  
Duration . . . . . on  
Time . . . . . 300 s

**CALL VA Call Hg plating**

Call text . . . . . Call Hg plating  
Track name . . . . . VA track  
Condition . . . . . off

**VA TRACK VA track**

Return immediately . . . . . off

**LOOP Replications**

Stop criteria

Max. run number . . . . . on  
Max. run number . . . . . 2  
Maximum run time . . . . . off  
Signal assessment for DT . . . . . off



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Condition . . . . . off

DP

**Hg plating**

**General/Hardware**

**Device**

Device name . . . . . 884\_1

Device type . . . . . 884 Professional VA

**Sensors/Electrodes**

Working electrode . . . . . RDE

Sensor type . . . . . RDE/SSE

Reference electrode . . . . . Reference electrode

Auxiliary electrode . . . . . Auxiliary electrode

Electrode test . . . . . on

**Stirrer**

Stirring rate . . . . . 2000 min<sup>-1</sup>

Hydrodynamic measurement . . . . . off

**Pretreatment**

Stirring time . . . . . 5.0 s

**Cyclovoltammetric pretreatment**

Start potential . . . . . -1.2 V

Vertex potential . . . . . -0.100 V

Sweep rate . . . . . 1 V/s

Cycles . . . . . 50

Duration . . . . . 110.00 s

**Potentiostatic pretreatment**

Potential 1 . . . . . -0.15 V

Waiting time 1 . . . . . 2 s

Potential 2 . . . . . -1.3 V

Waiting time 2 . . . . . 180 s

Potential 3 . . . . . off V

Waiting time 3 . . . . . 0 s

Potential 4 . . . . . off V

Waiting time 4 . . . . . 0.0 s

Potential 5 . . . . . off V

Waiting time 5 . . . . . 0.0 s

Equilibration time . . . . . 5.0 s

**Sweep**

Start potential . . . . . -0.8 V

End potential . . . . . -0.1 V

Potential step . . . . . 0.006 V

Potential step time . . . . . 0.1 s

Sweep rate . . . . . 0.060 V/s

Pulse amplitude . . . . . 0.05 V

Pulse time . . . . . 0.04 s

Measuring time . . . . . 0.02 s

Sweep duration . . . . . 11.67 s



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### Post-treatment

#### Cleaning

Cleaning potential . . . . . off V  
Cleaning time . . . . . 0.0 s

#### Standby potential

Standby potential . . . . . off V

### Potentiostat

#### Current measuring range

Highest range . . . . . 2 mA  
Lowest range . . . . . 2  $\mu$ A  
Automatically select optimum current measuring range . . . . . on

### TRACK

#### Shut off

Return immediately . . . . . off  
Delete old data . . . . . off

### STIR & PURGE

#### STIR & PURGE OFF

##### Device

Device name . . . . . 884\_1  
Device type . . . . . 884 Professional VA

##### Stir

Stirring rate . . . . . 2000 min<sup>-1</sup>  
Switch on . . . . . off  
Switch off . . . . . on  
Duration . . . . . off

##### Purge

Switch on . . . . . off  
Switch off . . . . . on  
Duration . . . . . off

### MAIN VALVE

#### N2 OFF

##### Device

Device name . . . . . 884\_1  
Device type . . . . . 884 Professional VA

##### Action

Open . . . . . off  
Close . . . . . on

### EXIT

#### Exit track

### CALL

#### Exit shut off

Call text	Track name	Sample type	Condition
Exit shut off	Shut off	off Sample	off

#### Error track



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## ERROR

### CALL Error shut off

Call text	Track name	Sample type	Condition
Error shut off	Shut off	off Sample	off

## Evaluation parameters

### General

#### Hg plating

#### Data processing

Smoothing . . . . . 1  
Reversed peaks . . . . . off

#### Curve evaluation

Fixed point evaluation . . . . . off

### Substances

#### Hg plating

#### Substances - Recognition

#### Hg plating

#### Substances - Baseline

#### Hg plating

#### Calibration curves

### Results

#### Substance concentration in the sample

#### Hg plating

### Results

#### Additional results

Result	Places	Prefix	Unit
Peak potential	3		V
Height	2	#	A
RSD of the heights of all replications	1		%
Area	2	#	C



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Result	Places	Prefix	Unit
RSD of the areas of all replications	1		%
Start base point	3		
End base point	3		
Standardized area	3		
Standardized height	3		
Total volume	3	#	L
Zero-order coefficient	3		
First-order coefficient	3		
Second-order coefficient	3		
Fourth-order coefficient	3		
Coefficient of determination	5		
Substance concentration in measuring vessel	2	#	
RSD of the substance concentration in measuring vessel	1		%
Amount of substance	2	#	
RSD of the substance concentration in the sample	1		%
Effective addition volume of the standard solution for the evaluation ratio	2	#	L
RSD of the effective addition volume of the standard solution for the evaluation ratio	1		%
Calibration factor DT	2	#	
RSD of the calibration factor DT	1		%
Effective addition volume of the sample solution for the evaluation ratio	2	#	L
RSD of the effective addition volume of the sample solution for the evaluation ratio	1		%

#### Database

Name database . . . . . viva