



License ID 459712
Client ID 001-NBK-02361
User Metrohm

Program version viva 2.1 - 60
2020-07-08 11:36:44 UTC+2

Method parameters

Method Suppressor determination (CVS, DT),
automated
Method saving date 2020-07-08 07:39:48 UTC+2
Method version 1
Method group Main group
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 check on

Application note

Sample data variables

Name	Type	Assignment	Fixed value	Comment	Monitoring
ID1	Text	ID1		Sample identification 1	off
ID2	Text	ID2		Sample identification 2	off
ID3	Text	ID3		Sample identification 3	off
Sample type	Text	Sample type		Sample type	off
Sample position	Number	Sample position		Sample position number	off

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

Name **ID2**
Type Text
Assignment on. ID2
Fixed value off.
Check at start on
Comment Sample identification 2



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Name **ID3**
Type Text
Assignment on. ID3
Fixed value off.
Check at start on
Comment Sample identification 3

Name **Sample type**
Type Text
Assignment on. Sample type
Fixed value off.
Check at start on
Comment Sample type

Name **Sample position**
Type Number
Assignment on. Sample position
Fixed value off.
Check at start on
Comment Sample position number
Variable monitoring off
Lower limit
Upper limit
Message
Display message on
Record message on
Message by e-mail off
E-mail template
Subject Message from viva - method 'Suppressor determination (CVS, DT), automated' - command 'Main track'
Acoustic signal off
Action off
Cancel determination on
Cancel determination and series off

Command comment

AB-403: MVA-23 - Determination of suppressor by DT

CALL

CALL PREP Sample

Call text	Track name	Sample type	Condition
CALL PREP Sample	Sample from rackoff	Sample	off

CALL

CALL ADD VMS



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Call text	Track name	Sample type	Condition
ADD VMS	ADD VMS	off Sample	off

**CALL
COND**

CALL COND

Call text Conditioning in VMS
Track name VA track
Stop criteria
Evaluation quantity on
Voltammetry command CVS
Substance Suppressor
Standard deviation 0.5 %
Number of runs on
Number of runs 20
Action Cancel command
Run time off
Condition off

CALL VMS

CALL VMS

Call text Measure VMS
Track name VA track
Condition off

CALL

Sample or standard?

Call text	Track name	Sample type	Condition
DT Determination	DT Determination	Sample	off
DT Calibration	DT Calibration	on Standard	off

CALL

CALL Drain

Call text	Track name	Sample type	Condition
Drain	Drain	off Sample	off

CALL

CALL Rinse

Call text	Track name	Sample type	Condition
Rinse	Rinse	off Sample	off

VA TRACK

VA track

Return immediately off

CVS

CVS

General/Hardware

Device

Device name not defined



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Device type 884 Professional VA

Sensors/Electrodes

Working electrode RDE

Sensor type RDE/SSE

Reference electrode Reference electrode

Auxiliary electrode Auxiliary electrode

Electrode check on

Stirrer

Stirring rate 2500 min⁻¹

Hydrodynamic measurement on

Pretreatment

Stirring time 5.0 s

Cyclovoltammetric pretreatment

Start potential 0.2 V

Vertex potential 1.625 V

Sweep rate 1 V/s

Cycles off

Duration - s

Potentiostatic pretreatment

Potential 1 off V

Waiting time 1 0.0 s

Potential 2 off V

Waiting time 2 0.0 s

Potential 3 off V

Waiting time 3 0.0 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 1.625 V

1st vertex potential -0.175 V

2nd vertex potential 1.625 V

Potential step 0.006 V

Potential step time 0.060 s

Sweep rate 0.100 V/s

Preparation cycles 1

Measuring cycles 2

Sweep duration 109.08 s

Post-treatment

Cleaning

Cleaning potential off V

Cleaning time 0.0 s

Standby potential



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Standby potential off V

Potentiostat

Current measuring range

Highest range 224 mA

Lowest range 20 µA

TRACK

DT Determination

Return immediately off

Delete old data off

LOOP

Sample addition

Stop criteria

Max. run number off

Maximum run time off

Signal assessment for DT on

Voltammetry command CVS

Substance Suppressor

Signal ratio Q/Q(0) 0.45

Condition off

**ADD
SAMPLE
DT**

ADD SAMPLE DT

Addition increments

Number 1

Addition volume 1 0.010 mL

Addition

Add manually off

Add with dosing device on

Dosing unit 2 mL Standard or sample

Dosing rate 2.0 mL/min

Filling rate maximum mL/min

CALL VA

CALL SAMPLE

Call text Measure sample

Track name VA track

Condition off

TRACK

DT Calibration

Return immediately off

Delete old data off

LOOP

Standard addition

Stop criteria

Max. run number off

Maximum run time off

Signal assessment for DT on

Voltammetry command CVS

Substance Suppressor

Signal ratio Q/Q(0) 0.45



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Condition off

ADD STD ADD STANDARD DT

Standard

Solution Standard or sample

Addition increments

Number 1

Addition volume 1 0.010 mL

Addition

Add manually off

Already added off

Add with dosing device on

Dosing rate 2.0 mL/min

Filling rate maximum mL/min

CALL VA CALL STANDARD

Call text Measure standard

Track name VA track

Condition off

TRACK ADD VMS

Return immediately off

Delete old data off

ADD AUX Add VMS

Auxiliary solution

Solution VMS

Volume 100 mL

Include volume in calculation on

Addition

Add manually off

Already added off

Add with dosing device on

Dosing rate maximum mL/min

Filling rate maximum mL/min

TRACK Sample from rack

Return immediately off

Delete old data off

CALL Empty measuring vessel

Call text	Track name	Sample type	Condition
Drain	Drain	off Sample	off

CALL Next sample



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Call text	Track name	Sample type		Condition
CALL Next sample	Next sample	off	Sample	off

LOOP**LOOP Prep sample**

Stop criteria

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

PREP**PREP 894/D4**

Dosing device

Dosing unit 894/D4 2mL Std or sample

CALL**Rinsing cycle**

Call text	Track name	Sample type		Condition
Rinsing cycle	Rinsing cycle	off	Sample	off

CALL**CALL Empty**

Call text	Track name	Sample type		Condition
Empty measuring vessel	Drain	off	Sample	off

TRACK**Next sample**

Return immediately off
Delete old data off

MOVE**MOVE to sample position**

Device

Device name not defined
Device type 858.0020 Professional Sample Processor

Target

Tower 1
Move Sample position

Beaker test

Display message on
Cancel determination off
Cancel determination and series off

Parameters

Shift rate 20 °/s
Shift direction auto
Swing rate 55 °/s



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LIFT Needle → Work position

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Target

Tower 1

Lift position Work position mm

Parameters

Lift rate 25 mm/s

SERIES START Series start track

RACK RACK INIT

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Rack test on

Test rack 6.2041.450

TRACK Rinsing cycle

Return immediately off

Delete old data off

LOOP LOOP Rinsing

Stop criteria

Max. run number on

Max. run number 2

Maximum run time off

Signal assessment for DT off

Condition off

CALL CALL Drain

Call text	Track name	Sample type	Condition
Drain	Drain	off Sample	off

CALL CALL Rinse

Call text	Track name	Sample type	Condition
Rinse	Rinse	off Sample	off

TRACK Rinse

Return immediately off

Delete old data off

PUMP PUMP Rinse

Device



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Device name not defined

Device type 858.0020 Professional Sample Processor

Pumps

Tower 1

Pump(s) 2

Action

Switch on off

Switch off off

Duration on

Time 18 s

TRACK Drain

Return immediately off

Delete old data off

PUMP PUMP Drain

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Pumps

Tower 1

Pump(s) 1

Action

Switch on off

Switch off off

Duration on

Time 50 s

**SERIES
END Series end track**

MOVE MOVE to rinsing vial

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Target

Tower 1

Move Rack position

Number = 'SD.Sample position' +1

Beaker test

Display message on

Cancel determination off

Cancel determination and series off

Parameters

Shift rate 20 °/s

Shift direction auto

Swing rate 55 °/s



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LIFT Needle → Work position

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Target

Tower 1

Lift position Work position mm

Parameters

Lift rate 25 mm/s

PREP PREP with water

Dosing device

Dosing unit 2 mL Standard or sample

EMPTY EMPTY standard or sample

Dosing device

Dosing unit 2 mL Standard or sample

LIFT Needle → Shift position

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Target

Tower 1

Lift position Shift position mm

Parameters

Lift rate 25 mm/s

CALL Final rinsing

Call text	Track name	Sample type	Condition
Final rinsing	Rinsing cycle	off Sample	off

EXIT Exit track

PUMP PUMPS OFF

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Pumps

Tower 1

Pump(s) 1+2

Action

Switch on off

Switch off on

Duration off



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Time 8.0 s

LIFT Needle → Shift position

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Target

Tower 1

Lift position Shift position mm

Parameters

Lift rate 25 mm/s

LQH FILL VMS

General/Hardware

Dosing device

Dosing unit 50 mL VMS

Parameters

Function Fill

Port 2

Rate maximum mL/min

LQH FILL Standard or sample

General/Hardware

Dosing device

Dosing unit 2 mL Standard or sample

Parameters

Function Fill

Port 2

Rate maximum mL/min

ERROR Error track

PUMP PUMPS OFF

Device

Device name not defined

Device type 858.0020 Professional Sample Processor

Pumps

Tower 1

Pump(s) 1+2

Action

Switch on off

Switch off on

Duration off

Time 8.0 s

Evaluation parameters



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General

CVS

Data processing

Smoothing 1

Reversed peaks off

Curve evaluation

Fixed point evaluation off

Substances

CVS

Substances - Recognition

Substance	Active	Characteristic potential	Tolerance	Min. width	Max. width	Min. measured quantity	Sweep direction
Suppressor	on	0.2 V	0.2 V	0.01 V	1 V	200 pA	anodic

CVS

Substances - Baseline

Substance	Baseline type	Start base point	End base point
Suppressor	Horizontal	0.8 V	-0.05 V

Standards

Standards

Name Standard or sample

Suppressor 10 mL/L

Calibration

General

Calibration method DT

Blank value correction with evaluation quantity off

CVS

Calibration curves

Substance	Evaluation quantity	Curve type for standard	Weighting
Suppressor	Area	Nonlinear regression	on
Begin of evaluation standard	Curve type for sample	Begin of evaluation sample	Evaluation ratio
1.10	Nonlinear regression	1.10	0.5

Results



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Substance concentration in the sample

CVS

Substance	Decimal places	Assignment
Suppressor	2	RS01

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
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