

Titer of AgNO₃ 0.1 mol/L

Method for the standardization of 0.1 mol/L silver nitrate usually used for chloride determinations.

Sample	Primary standard Sodium chloride 30 - 50 mg	Preparation and Procedures
Substance	NaCl M = 58.44 ; z = 1	
Chemicals	Water	
Titrant	Silver nitrate c(AgNO ₃) = 0.1 mol/L;	
Standard		
Instruments	DL55;, ST20A, AT261, Printer (HP DeskJet 510)	
Accessories	Glass beaker ME-101446, 2 Peristaltic pumps ME-65241	
Indication	DM141	
Chemistry		
Calculation		
Waste disposal	Filtration; the precipitate (silver chloride) has to be classified as special waste. The filtrate has to be neutralized with sodium hydroxide.	Remarks Glass beakers are recommended in order to avoid any interference with the weighing due to electrostatic effects. 50 mL diluted sulfuric acid are used to dissolve sodium chloride. Sulfuric acid is dispensed by a pump connected to the ST20A output «Dose». A second pump allows the rinsing of the electrode (ST20A output «Rinse»). This method allows a fully automatic analysis procedure. The mean value of the titer is automatically stored as part of the setup data by the function TITER. In order to shorten the titration time you can use the predispending in the function EQP TITRATION. The method can easily be modified for manual operation. Enter «Stand 1» as titration stand in the function SAMPLE
Author	C. De Caro, A. Sartra	

Results

METTLER TOLEDO DL55 Titrator V1.0 Mettler Toledo AG
007 Market Support Laboratory

Method 90025 Titer AgNO3 (0.1 mol/L) 01-Jul-1995 12:00
Measured 19-Jul-1995 14:49
User

RESULTS

No.	ID	Sample size and results	Titer AgNO3
1	NaCl	0.03324 g R1 = 0.9960	Titer AgNO3
2	NaCl	0.0337 g R1 = 0.9984	Titer AgNO3
3	NaCl	0.0363 g R1 = 0.9953	Titer AgNO3
4	NaCl	0.03067 g R1 = 1.0008	Titer AgNO3
5	NaCl	0.04068 g R1 = 0.9980	Titer AgNO3
6	NaCl	0.03654 g R1 = 0.9927	Titer AgNO3

STATISTICS

Number results	R1	n = 6	
Mean value		x = 0.9969	Titer AgNO3
Standard deviation		s = 0.00280	Titer AgNO3
Rel. standard deviation	srel = 0.281	%	

TITER

Titrant AgNO3 0.1 mol/L
New titer t = 0.99686

Table of measured values

	Volume [mL]	Increment [ml]	Signal [mV]	Change [mV]	1st deriv. [mV/mL]	Time [mins]
EC1	3.0000		-27.1			0:03
	3.0200	0.0200	-27.3	-0.1	6.5	0:06
	3.0400	0.0200	-27.2	0.0	0.0	0:10
	3.0600	0.0200	-27.1	0.1	1.6	0:13
	3.0800	0.0200	-27.0	0.1	1.6	0:16
	3.1000	0.0200	-26.9	0.1	1.6	0:19
	3.1200	0.0200	-26.8	0.1	1.6	0:22
	3.1400	0.0200	-26.7	0.1	1.6	0:25
	3.1600	0.0200	-26.6	0.1	1.6	0:28
	3.1800	0.0200	-26.5	0.1	1.6	0:31
	3.2000	0.0200	-26.4	0.1	1.6	0:34
	3.2200	0.0200	-26.3	0.1	1.6	0:37
	3.2400	0.0200	-26.2	0.1	1.6	0:40
	3.2600	0.0200	-26.1	0.1	1.6	0:43
	3.2800	0.0200	-26.0	0.1	1.6	0:46
	3.3000	0.0200	-25.9	0.1	1.6	0:49
	3.3200	0.0200	-25.8	0.1	1.6	0:52
	3.3400	0.0200	-25.7	0.1	1.6	0:55
	3.3600	0.0200	-25.6	0.1	1.6	0:58
	3.3800	0.0200	-25.5	0.1	1.6	1:01
	3.4000	0.0200	-25.4	0.1	1.6	1:04
	3.4200	0.0200	-25.3	0.1	1.6	1:07
	3.4400	0.0200	-25.2	0.1	1.6	1:10
	3.4600	0.0200	-25.1	0.1	1.6	1:13
	3.4800	0.0200	-25.0	0.1	1.6	1:16
	3.5000	0.0200	-24.9	0.1	1.6	1:19
	3.5200	0.0200	-24.8	0.1	1.6	1:22
	3.5400	0.0200	-24.7	0.1	1.6	1:25
	3.5600	0.0200	-24.6	0.1	1.6	1:28
	3.5800	0.0200	-24.5	0.1	1.6	1:31
	3.6000	0.0200	-24.4	0.1	1.6	1:34
	3.6200	0.0200	-24.3	0.1	1.6	1:37
	3.6400	0.0200	-24.2	0.1	1.6	1:40
	3.6600	0.0200	-24.1	0.1	1.6	1:43
	3.6800	0.0200	-24.0	0.1	1.6	1:46
	3.7000	0.0200	-23.9	0.1	1.6	1:49
	3.7200	0.0200	-23.8	0.1	1.6	1:52
	3.7400	0.0200	-23.7	0.1	1.6	1:55
	3.7600	0.0200	-23.6	0.1	1.6	1:58
	3.7800	0.0200	-23.5	0.1	1.6	2:01
	3.8000	0.0200	-23.4	0.1	1.6	2:04
	3.8200	0.0200	-23.3	0.1	1.6	2:07
	3.8400	0.0200	-23.2	0.1	1.6	2:10
	3.8600	0.0200	-23.1	0.1	1.6	2:13
	3.8800	0.0200	-23.0	0.1	1.6	2:16
	3.9000	0.0200	-22.9	0.1	1.6	2:19
	3.9200	0.0200	-22.8	0.1	1.6	2:22
	3.9400	0.0200	-22.7	0.1	1.6	2:25
	3.9600	0.0200	-22.6	0.1	1.6	2:28
	3.9800	0.0200	-22.5	0.1	1.6	2:31
	4.0000	0.0200	-22.4	0.1	1.6	2:34
	4.0200	0.0200	-22.3	0.1	1.6	2:37
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	4.6600	0.0200	-19.1	0.1	1.6	4:13
	4.6800	0.0200	-19.0	0.1	1.6	4:16
	4.7000	0.0200	-18.9	0.1	1.6	4:19
	4.7200	0.0200	-18.8	0.1	1.6	4:22
	4.7400	0.0200	-18.7	0.1	1.6	4:25
	4.7600	0.0200	-18.6	0.1	1.6	4:28
	4.7800	0.0200	-18.5	0.1	1.6	4:31
	4.8000	0.0200	-18.4	0.1	1.6	4:34
	4.8200	0.0200	-18.3	0.1	1.6	4:37
	4.8400	0.0200	-18.2	0.1	1.6	4:40
	4.8600	0.0200	-18.1	0.1	1.6	4:43
	4.8800	0.0200	-18.0	0.1	1.6	4:46
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	5.9600	0.0200	-12.6	0.1	1.6	7:28
	5.9800	0.0200	-12.5	0.1	1.6	7:31
	6.0000	0.0200	-12.4	0.1	1.6	7:34

Method

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Method 90025 Titer AgNO3 (0.1 mol/L)
Version 01-Jul-1995 12:00

Title
Method ID . . . . . 90025
Title . . . . . Titer AgNO3 (0.1 mol/L)
Date/time . . . . . 01-Jul-1995 12:00
Sample
Sample ID . . . . . NaCl
Entry type . . . . . Weight
Lower limit [g] . . . . . 0.03
Upper limit [g] . . . . . 0.05
Molar mass M . . . . . 58.44
Equivalent number z . . . . . 1
Titration stand . . . . . ST20A
Pump . . . . . Yes
Solvent . . . . . H2SO4
Volume [mL] . . . . . 50.0
Rinse . . . . . Yes
Solvent . . . . . H2O
Volume [mL] . . . . . 20.0
Conditioning . . . . . No
Temperature sensor . . . . . Manual
Stir
Speed [%] . . . . . 50
Time [s] . . . . . 20
EQP titration
Titration/Sensor
Titrant . . . . . AgNO3
Concentration [mol/L] . . . . . 0.1
Sensor . . . . . DM141
Unit of meas. . . . . mV
Predispensing . . . . . No
Titration addition . . . . . Dynamic
dE(set) [mV] . . . . . 8.0
dV(min) [mL] . . . . . 0.02
dV(max) [mL] . . . . . 0.2
Measure mode . . . . . Equilibrium controlled
dE [mV] . . . . . 0.5
dt [s] . . . . . 2.0
t(min) [s] . . . . . 3.0
t(max) [s] . . . . . 15.0
Recognition
Threshold . . . . . 100.0
Steepest jump only . . . . . No
Range . . . . . No
Tendency . . . . . Positive
Termination
at maximum volume [mL] . . . . . 10.0
at potential . . . . . No
at slope . . . . . No
after number EQPs . . . . . Yes
n = . . . . . 1
comb. termination conditions . . . . . No
Evaluation
Procedure . . . . . Standard
Potential 1 . . . . . No
Potential 2 . . . . . No
Stop for reevaluation . . . . . No
Calculation
Formula . . . . . R=m/(VEQ*c*C)
Constant . . . . . C=M/(1000*z)
Decimal places . . . . . 4
Result unit . . . . .
Result name . . . . . Titer AgNO3
Statistics . . . . . Yes
Titer
Titration/Sensor
Titrant . . . . . AgNO3
Concentration [mol/L] . . . . . 0.1
Formula t = . . . . . x
  
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Report
Output unit . . . . . Printer
Results . . . . . No
All results . . . . . Yes
Raw results . . . . . No
Table of measured values . . . . . Yes
Sample data . . . . . No
E - V curve . . . . . Yes
dE/dV - V curve . . . . . No
d2E/dV2 - V curve . . . . . No
log dE/dV - V curve . . . . . No
E - t curve . . . . . No
V - t curve . . . . . No
dV/dt - t curve . . . . . No
  
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