



Overview

The concentration of sodium in fitness water was determined by using the Multiple Known Addition technique and the Orion 86-11BN ROSS Sodium Electrode. The Orion 960 Autochemistry System calculates sample concentration, electrode slope, and verifies the results through a spike recovery test.

Market	Food and Beverage	Species Measured	Sodium
Sample	Fitness water	Sample Size	50 mL
		Typical Concentration	10 - 15 mg/l
Technique #	2 Multiple Known Addition	Electrode	Orion 8611BN ROSS Sodium Electrode
Solutions	1000 ppm Sodium Known Addition Std w/ ISA (841109); Sodium ISA (841111); Ref Electrode Filling solution (900010); Sodium Reconditioning Solution (841113); Sodium Electrode Storage Solution (841101); Sodium Electrode rinse solution.		
Solutions preparation:	To prepare 1 L of sodium electrode rinse solution, add 10 mL of the ISA to a 1 liter squeeze bottle and fill it with distilled water. Sodium standards are prepared by Orion.		
Titrant standardization	Sodium Orion 841109 standard is already standardized.		
Sample Prep	Accurately pipette 50 mL of sample and 5 mL of ISA into a beaker.		
Statistics			
# of Trials	3	Mean	11.7 mg/L
		%CV	0.0%
		Analysis Time	3.2 minute(s)
Comments	Rinse the electrodes, stirrer, and dispenser probe thoroughly between measurements with sodium electrode rinsing solution.		

Method Parameters

Sample Volume/Weight	50 mL	Timed or Stability Readings	Stability 3.0 mV/min.
Constant Increment	18.0 mV	Number of Endpoints	N/A
Max Titrant Volume	10.0 mL	Desired Units	mg/L
Molecular weight	22.99	Predose	0 mL
Prestir	1 sec.	Additional Parameters	Total solution volume - 55 mL; Precision - 2.0 %
Reaction Ratio	1		



Results

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METHOD 5 SUMMARY

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SAMPLE ID NUMBER: 3
TEST: Propel fitness water
SITE: _____
ANALYST: _____
1026 12-05-06 ELECTRODE: 1:Na+
TECHNIQUE 2 MULTIPLE KNOWN ADDN
TOTAL SOLN VOL 55.000 mL
SAMPLE VOLUME 50.000 mL
STANDARD .04350 M of Sodium
PRECISION 2.0 %
CONST INCREMENT 18.0 mV
MAX STANDARD VOL 10.000 mL
STABILITY CRITERION 3.0 mV/min
PRESTIR 1.0 sec
CONTINUOUS STIRRING
REACTION RATIO 1.0000
MOLECULAR WEIGHT 22.99
CAL CONSTANT 1.00000

0 v= 0.000 mL E= -116.8 mV 24 sec
1.0 mV/min drift +/- 0.0 mV noise
1 v= 0.550 mL E= -100.2 mV 34 sec
0.0 mV/min drift +/- 0.0 mV noise
unkn= 11.8

2 v= 3.500 mL E= -69.1 mV 30 sec
2.4 mV/min drift +/- 0.0 mV noise
S= 58.0 Eo= 76.9 unkn= 11.5

3 v= 8.950 mL E= -49.8 mV 38 sec
0.0 mV/min drift +/- 0.0 mV noise
S= 58.3 Eo= 77.8 unkn= 11.7
std dev= 0.0 mV precn= 1.2 %

2.6 min

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MULTIPLE INCREMENT ANALYSIS

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SAMPLE = 11.7 mg/L +/- 1.2%

SPIKE RECOVERY= 100.3%

RECOVERY ERROR= 0.3%