

AQUACOUNTER Application Sheet	COM series	DATA No. B11	1st edition
Pharmaceuticals	Measurement of sodium sulfisozole purity by diazotization titration		

## 1. Measurement outline

This section introduces an example of measurement on the purity of sodium sulfisozole, an antimicrobial agent (sulfur agent), by diazotization titration conforming to Japanese Pharmacopoeia.

0.4g sample was weighed and added with 40mL purified water, 10mL hydrochloric acid (1 + 1) and 10mL potassium bromide as the catalyst for diazotization reaction. Potentiometric titration was conducted with 0.1mol/L sodium nitrite titrant while cooling the solution to be titrated to 15°C or lower.

Sodium sulfisozole

$\text{C}_9\text{H}_8\text{N}_3\text{NaO}_3\text{S}$  FW = 261.24

## 2. Reagents and Electrodes

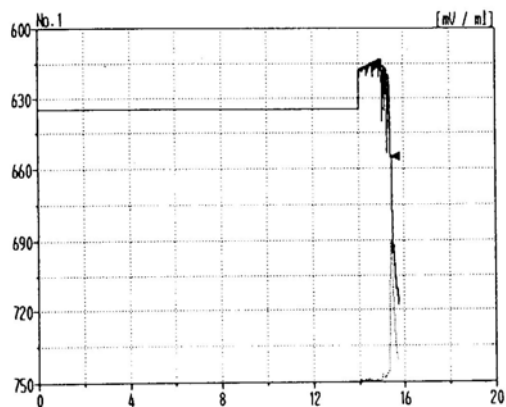
(1) Reagents	Titrant	0.1mol/L sodium nitrite titrant
	Hydrochloric acid (1 + 1)	10mL for 1 measurement
	Potassium bromide solution;	60g potassium bromide/200mL water solution 10mL used for 1 measurement
(2) Electrodes	Indicator electrode	Platinum electrode PT-301 (P/N D231244-A)
	Reference electrode	*Reference electrode RE-201      *standard accessory

### 3.Measurement conditions example (forCOM-1600S)

Master File No.1	
Condition file: 1	
Method	AUTO
Amp No.	2
Buret No.	1
Meas Unit	mV
S-Timer	0 sec
CP	9 mL
DP	1.0 mL
Direction	N/A
End Sens	300
Over mL	0 mL
Max Vol	20 mL
Mode No.	21
Unit	%
Blank	0
Factor	Titer of the titrant
Molarity	0.1
K	270.32
Formula	$(D-B) \times K \times F \times M / (S \times 10)$

Mode No.21	
Pre Int	0 sec
Del K	0
Del Sens	0 mV
Int Time	5 sec
Int Sens	2 mV
BrT Speed	2
Pulse	40

### 4. Measurement example



### Measurement result

Sample No.	Sample volume (g)	Titration value (mL)	Content (%)
1	0.3987	15.317	99.77
2	0.3993	15.360	99.90
3	0.4206	15.474	99.81
Avg.			99.83 %
Std. Dev.			0.07 %
C.V.			0.07 %

## 5. Outline

- (1) Potentiometric titration was conducted conforming to Japanese Pharmacopoeia and measurement results with favorable precision were obtained. Since this sample has relatively fast reaction speed, it was titrated using the zero-current potentiometric titration. It slowed down in changes of the titration curve near the end point with polarization titration by constant-current potentiometric titration, giving unfavorable results in repeatability.
- (2) As a guidance for selection of end point detection method for diazotization titration in general, zero-current potentiometric titration is suitable for samples with fast diazotization reaction (sulfanilamide, sodium sulfisozole, etc.) and polarization titration (constant-current potentiometric titration or constant-voltage current titration) gives favorable results for samples with slow diazotization reaction (sulfamic acid, amidosulfuric acid, etc.).
- (3) For other various conditions, please see Data No.B9 (Evaluation of titer of sodium nitrite titrant with sulfamic acid).

## Key word

Medical product, diazotization titration, sodium sulfisozole

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