

HIRANUMA APPLICATION DATA	Automatic Titrator	Data No.	B7	Apr. 19, 2018
Drugs and Medicines	Available iodine in mouthwash (Povidone-iodine)			

1. Abstract

Determination method of available iodine in mouthwash containing povidone-iodine which is described in *Japanese Pharmacopoeia* is introduced here.

Dispense the sample and dilute it with DI water. Redox titration with sodium thiosulfate is performed based on the following formula (1).



2. Configuration of instruments and reagents

(1) Configuration of instruments

Main unit	: Hiranuma Automatic Titrator	COM series
Electrodes	: Platinum electrode	PT-301
	: Reference electrode	RE-201Z

*The following electrode is also useable instead of the above electrode.

- PR-701BZ (Platinum reference electrode)
- Combination of PT-301 (Platinum electrode) and GR-501BZ (Glass-reference electrode)

(2) Reagent

Titrant	: 0.1 mol/L Sodium thiosulfate standard solution
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3. Measurement procedure

- (1) Dispense 5 mL of sample with volumetric pipette into a 100 mL beaker.
- (2) Add about 40 mL of DI water.
- (3) Immerse the electrode and titrate with 0.1 mol/L sodium thiosulfate standard solution.

4. Measurement conditions and results

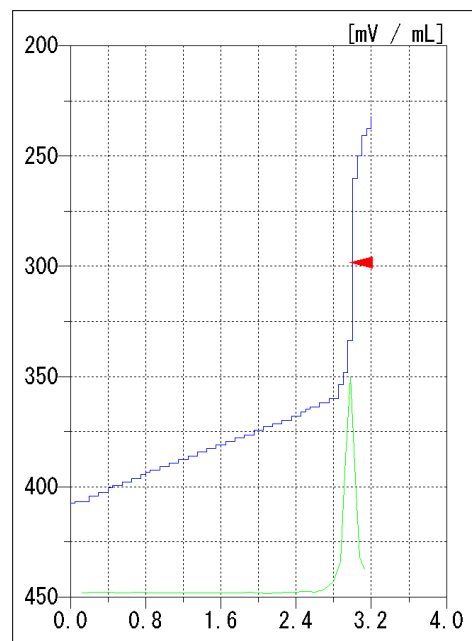
Example of titration condition

Cndt No.	1	ConstantNo.	1	Mode No.	9
Method	Auto	Size	5.0000 mL	Pre Int	0 sec
Buret No.	1	Blank	0.0000 mL	Del K	2
Amp No.	2	Molarity	0.1000 mol/L	Del Sens	0 mV
D. Unit	mV	Factor	1.0040	Int Time	5 sec
S-Timer	10 sec	K	126.900	Int Sens	3 mV
C.P. mL	0 mL	L	0.000	BrT Speed	2
T Timer	0 sec	Unit	mg/mL	Pulse	40
D.P. mL	0 mL	Formula	(D-B)*K*F*M/S		
End Sens	200	Digits	4		
Over mL	0.2 mL	Auto In Pram.	None		
Max. Vol.	20 mL				

Measurement results

Number of Measurement	Size (mL)	Titrant Volume (mL)	Available iodine (mg/mL)
1	5	2.970	7.568
2	5	2.971	7.571
3	5	2.974	7.578
Average			7.57 mg/mL
Standard deviation			0.005 mg/mL
Coefficient of variation			0.07 %

Example of titration curve



5. Note

The determination method of available iodine in povidone-iodine which is described in *Japanese Pharmacopoeia* readily causes individual error because the endpoint is judged by our eyes using starch indicator. The end point detection by potentiometric titration using a platinum electrode described in this report allows to measure with less individual error.

Keywords: Available iodine, Mouthwash, Povidone-iodine, Redox titration, Platinum electrode