HIRANUMA APPLICATION DATA	Automatic Titrator	Data No.	B7	Nov. 2, 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).

$$I_2 + 2Na_2S_2O_3 \rightarrow 2NaI + Na_2S_4O_6 \quad \cdots (1)$$

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

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

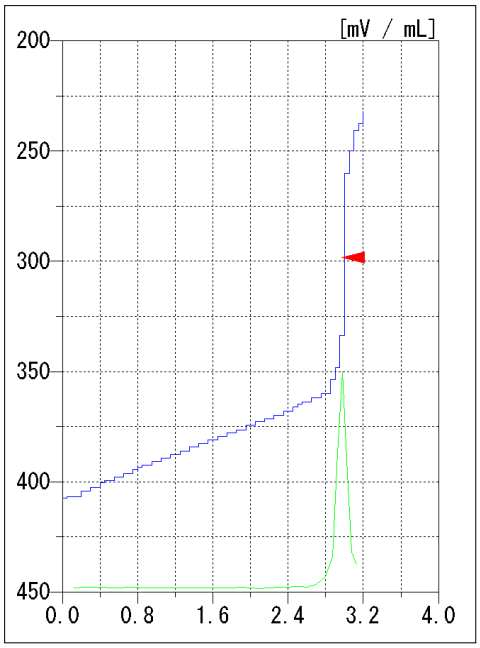
Example of titration condition

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

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

*Some measurement would not be possible depending on optional configuration of system.