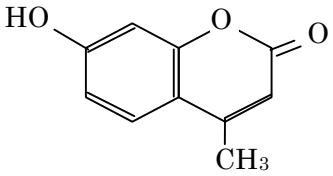
AQUACOUNTER Application Sheet	COM series	DATA No. B5	1st edition
Pharmaceuticals	Measurement of hymecromone purity		

1. Measurement outline

The method for measuring the purity of hymecromone which is used as bile secretion promoter is stipulated as a quantification method in Japanese Pharmacopoeia (13th revision). In this method, the sample is dissolved in dimethylformamide for potentiometric titration with tetramethylammonium hydroxide titrant (abbreviated as TMAH hereafter). 1mol hymecromone reacts quantitatively with 1mol TMAH. This section introduces an example of potentiometric titration using sodium methoxide (CH_3ONa) titrant instead of TMAH.



Hymecromone

$C_{10}H_8O_3$

2. Reagents and Electrodes

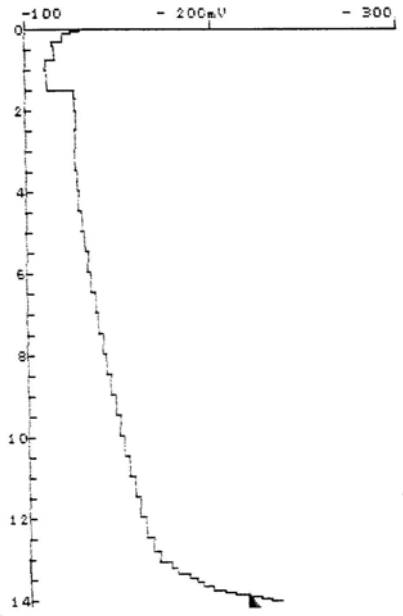
(1) Reagents	Titrant	0.1mol/L sodium methoxide (CH_3ONa) titrant
	Solvent	Dimethylformamide 90mL used for 1 measurement
(2) Electrodes *Standard accessories	Indicator electrode	*Glass electrode GE-101B
	Reference electrode	*Reference electrode RE-201
	Note) Inner solution for reference electrode is saturated sodium perchlorate/acetate solution.	

3. Measurement conditions example (COM-1600S)

Master File No.1 Condition file: 1	
Method	AUTO
Amp No.	1
Buret No.	1
Meas Unit	mV
S-Timer	0 sec
CP	0 mL
DP	2 mL
Direction	N/A
End Sens	50
Over mL	0 mL
Max Vol	40 mL
Mode No.	5
Unit	%
Blank	BLANK result value
Factor	Titer of the titrant
Molarity	0.1
K	176.17
Formula	(D-B)×K×F×M/(S×10)

Mode No.5	
Pre Int	0 sec
Del K	5
Del Sens	0 mV
Int Time	3 sec
Int Sens	3 mV
Brt Speed	2
Pulse	40

4. Measurement example



Sample measurement results

Sample No.	Sample volume (g)	Titration value (mL)	Content (%)
1	0.2527	13.846	99.13
2	0.2567	14.068	99.17
	Avg.		99.15 %

5. Outline

(1) In this section, the sample was measured using sodium methoxide titrant instead of TMAH titrant. Though Japanese Pharmacopoeia (13th revision) stipulates the titration method using TMAH, it is considered that measurement is possible in a similar fashion as this measurement. What must be noted in measurement is that the potential of the indicator electrode does not have good stability and especially the potential may fluctuate at the beginning of titration since dimethylformamide with small permittivity is used as the titration solvent. However, the potential gradually stabilizes as the titrant is dropped and permittivity of the titration solvent grows.

(2) In this measurement, the content in the sample is measured accurately and it is necessary that measurement of sample weight, titer of titrant, blank value, etc. be conducted with due caution. It is especially necessary that the titer of the titrant (TMAH) be measured regularly with potassium hydrogen phthalate.

(3) Method of preparing reference electrode

The reference electrode to be used in this measurement must be an electrode for nonaqueous titration. The following shows the method for preparing the reference electrode to be used for this measurement:

- Release the inner solution of reference electrode RE-201 and wash the inner surface well with methanol or ethanol. Then prepare a methanol or ethanol solution saturated with sodium perchlorate (special class reagent) and inject it from the refill opening of the electrode. Since the electrode potential may not stabilize immediately, it is recommended that it is used after leaving it standing for 1 entire day.

Key words

Medical product, hymecromone, nonaqueous titration, sodium methoxide, tetramethylammounium hydroxide

Hitachi High-Technologies Corporation
Head Office 1-24-14, Nishishinbashi,Minato-Ku,Tokyo 105-8717, Japan
Tel : 81-3-3504-7239 Fax : 81-3-3835-7302
http://www.hitachi-hitech.com

Hiranuma Sangyo Co.,Ltd.
1739, Motoyoshidacho, Mito-City, Ibaraki 310-0836, Japan
Tel : 81-29-247-6411 Fax : 81-29-247-6942
http://www.hiranuma.com