Category

Pharmaceuticals
Cosmetics

Coulometric Karl Fischer Titrator AQ series

Water in freeze-dried serum

by Indirect method (Evaporator + Coulometric KF titrator)

Referenced methods

Key words; freeze dried serum, lyophilized products, Karl Fischer titration

Outline

In this application, the indirect Karl Fischer method is introduced for the water determination in lyophilized products by using AQUACOUNTER® AQ-2100 (or AQ-300) coulometric KF titrator interfaced with Solid Evaporator EV-2000.

Reagents

Anode solution	:	Hydranal® Coulomat AG 100mL
Cathode solution	:	Hydranal® Coulomat CG
Additional solvent	:	Dehydrated methanol 50mL

Recommended configurations

- *KF Titrator :* **AQ-2100S** (High-end, LCD screen)
- *Evaporator*: **EV-2000** Solid evaporator

*Optional Thermal Printer **PR-2000T2** / Dot impact printer **PR-302B**

▲ AQ-2100S + Printer + EV-2000

Procedure

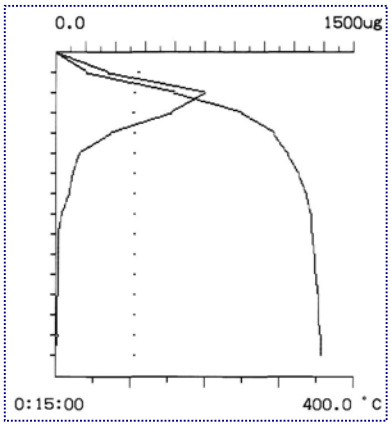
1. Place an aluminum foil cup into the evaporation chamber and set it on the evaporation base.
2. Press F1[EV Start] key on the AQ-2100 to start pre-heating.
3. Place a sample container, a funnel, and a sampling spoon on the balance, and tare it.
4. Press SAMPLE key once the instrument is ready for measurement.
5. Open a glass stopper and introduce about 0.05g of sample through the funnel once the background stabilized.
6. Close the stopper and press TITRATION key to start titration.
7. Weigh the total weight of the sample vial and other sampling tools again.
   The difference between the total weight before/after sampling shall be the sample size.
6. Press S.SIZE/No. key to input the amount of sample added.

Condition parameters and an example result

Condition file	
Cal Mode	0
Interval Time	20 sec
S-Timer	0 min
T-Timer	0 min
Current	FAST
Blank Value	0.0 µg
Unit Mode	AUTO
Back Ground	ON
Auto Interval	0.00000 g
Minimum Count	5 µg

EV file	
Step1 Temp.	105 ºC
Time	15 min
Pre Heat End Time	10 min
B.G.	0 µg
Cooling Time	5 min
B.G. Count	10
Back Purge Time	5 sec

N_2 Carrier gas flow rate	50mL/min



Sample No.	Sample size (g)	Measured H_2O (µg)	Water content (%)	
1	0.0988	1339.5	1.3558	Mean. 1.39 %
2	0.0508	708.3	1.3943	SD 0.04 %
3	0.0603	863.4	1.4318	CV 2.7 %

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