

Determination of Water Content in Polypropylene

This application method is applicable for the determination of water in polypropylene.
The use of the solid evaporator and the appropriate heating temperature setting are important.

Titrator	AQV-2000/AQV-200 (Volumetric titrator) AQ-2000/AQ-200 (Coulometric titrator)	
KF Oven	EV-2000 Solid Evaporator	
Reagents for Volumetric Titrator	Titrant	HYDRANAL ^R Composite 5 or equivalent
	Titration medium	Dehydrated methanol
Reagents for Coulometric Titrator	Anode solution	HYDRANAL ^R Coulomat AG or equivalent
	Cathode solution	HYDRANAL ^R Coulomat CG or equivalent

PARAMETER SETTINGS for the Titrator

Volumetric Titrator		Coulometric Titrator	
End Mode	1	CAL Mode	0
CAL Mode	0	Interval	20 sec
Interval	20 sec	Current	Slow or Medium
MIN Feed	0.01 ml	S-timer	2 min
S-timer	2 min	T-timer	15 - 20 min
T-timer	15 - 20min		

PARAMETER SETTINGS for Oven

Temperature	200 °C
Carrier flow rate	50 ml/min

PROCEDURE:

1. Brake the sample into small pieces and collect in a tightly closed container.
2. Make the carrier gas flow.
3. Lift up the heating block. Pre-heat the evaporation chamber until it is dried.
4. Titrate the titration medium to zero. (Blanking)
5. Pull down the heating block and allow the chamber cool to the room temperature.
6. Press SAMPLE key.
7. Put approx. 2 g of the sample into the evaporation chamber by opening the glass stopper.
8. Press TITRATION key.
9. Press S.SIZE key and enter the sample size.

OPERATING NOTES:

1. The anode solution will evaporate and lost during the measurement. Add 50 ml of dried methanol to 100ml of the anode solution. When the level of the anode solution goes down to the 100 ml mark on the electrolytic cell, add another 50 ml of methanol to the anode solution.
2. Injected sample size is calculated by subtracting AFTER injection container weight from BEFORE injection container weight.
3. To get the most accurate result, the titrant should be consumed around 5 ml. To make titrant consumption into this range, calculate the optimum sample size by this equation ;

$$\text{SIZE (g)} = 5 \times F / (C \times 10)$$

Where ;

F : Factor of titrant. ex. Factor of Composite 5 is 5 (mgH₂O/ml).

C : Sample moisture in %

For example, sample moisture is 1%, and Factor is 5, then optimum sample size is,

$$5 \times 5 / (1 \times 10) = 2.5\text{g}$$

4. The optimum heating temperature may vary from sample to sample. Examine several temperatures to find an optimum temperature. At the optimum temperature, the measurement time may be minimized, and the titration curve rises sharply and becomes flat at the end point.