Application Note

Industry	Petrochemicals
Instrument	Automatic potentiometric titrator
Measurement method	Potentiometric titration / Neutralization titration
Standards	ASTM D664, GB/T 7304

Determining the total acid number of petroleum products is important in evaluating their quality, as it indicates factors such as their degree of degradation. This Application Note introduces an example of the determination of the total acid number of petroleum products in accordance with ASTM D664. Mineral oil was used as the analyte, as it is a standard material of known total acid value.

1) After each titration, make sure to immerse the electrode in an aqueous solution of hydrochloric

Titrant	0.1 mol/L Potassium hydroxide in 2-propanol
Solvent	A solution of 500 mL of toluene, 5 mL of water, and 495 mL of 2-propanol

-Measurement-

1) In accordance with its acid number, a specified quantity of sample (outlined in ASTM D644) is introduced into a beaker and the mass is measured.
2) Add 60 mL of titration solvent and titrate with 0.1 mol/L potassium hydroxide in 2-propanol solution.
3) A separate blank test is performed to correct the titration volume during sample measurement.

Acid number (mgKOH / g) = (EP1 ï BL1) Ĭ TF Ĭ C1 Ĭ K1 / S

EP1	Titration amount of sample (mL)	
BL1	Blank test (mL)	= 0.0606
TF	Factor of titrant	= 1.0837
C1	Concentration conversion coefficient	= 5.61 mg/mL
K1	Unit conversion factor	= 1
S	Quantity of sample (g)	

—Titration parameter—

<Titr. Mode>	Auto Int.
<Titr. Form>	EP Stop

<Titr. Para.>

Burette No.	1
Max. Volume	10 (mL)
Channel/Unit(Ctrl.)	Ch1, mV
Channel/Unit(ref.)	off

<Ctrl. Para.>

Number of EP	1
End Sense	Set
EP Sense (Potential)	20 (dE)