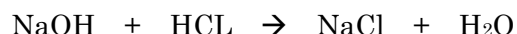


<b>AQUACOUNTER Application Sheet</b>	<b>COM series</b>	<b>DATA No. C4</b>	<b>1st edition</b>
<b>Cosmetics</b>	<b>Quantification of alkali in liquid detergents for industrial use</b>		

## 1. Measurement outline

Alkalis (mainly of sodium hydroxide) in detergents for industrial use are determined by potentiometric titration with hydrochloric acid. Photometric titration by using an optional photometric probe was also taken as reference.



## 2. Reagents and Electrodes

(1) Reagents	Titrant	0.1mol/L hydrochloric acid
	Indicator	Phenolphthalein/ethanol solution (for photometric titration)
(2) Electrodes	Indicator electrode	*Glass electrode GE-101B to IE jack
	Reference electrode	*Reference electrode RE-201 to RE jack
* Standard accessories	*530nm filters (for photometric titration)	

## 3. Measurement conditions example (for COM-1600M w/ Photometric unit)

<b>Master File No.1</b>	
<b>Condition file: 1</b>	
<b>Parameters for Condition file 1</b>	
Method	AUTO
Amp No.	2
Buret No.	1
Meas Unit	mV / T% (for photometric)
S-Timer	10 sec
CP	0 mL
DP	0 mL
Direction	N/A
End Sens	1000
Over mL	1.00 mL
Max Vol	20 mL
Mode No.	4
Unit	mL/g
Formula	D/S
Blank	0
Molarity	0.1
Factor	Titer of the titrant
K	0

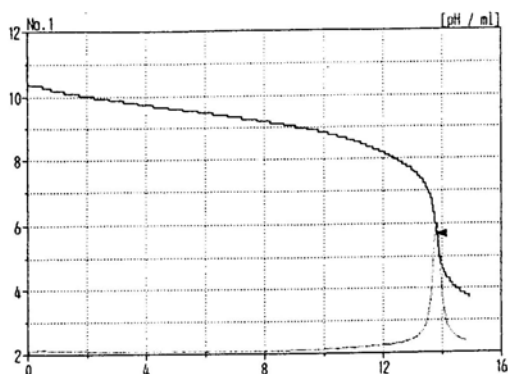
<b>Mode No.4</b>	
Pre Int	0 sec
Del K	9
Del Sens	0 mV
Int Time	3 sec
Int Sens	3 mV
Brst Speed	2
Pulse	40

#### 4. Procedure

- 1) Take approximately 0.5g of sample weighed precisely and dissolve it in 50mL of deionized water.
  - 2) Add approximately 0.1g of sodium thiosulfate to decompose the chlorine-based oxidizer.
  - 3) Position the electrodes in the solution, then titrate with 0.1mol/L hydrochloric acid.
- \* For the detection of the end points by photometric titration, 1 drop of indicator (phenolphthalein) is added. And insert a photometric probe. Then titrate with 0.1mol/L hydrochloric acid.

#### 5. Measurement example

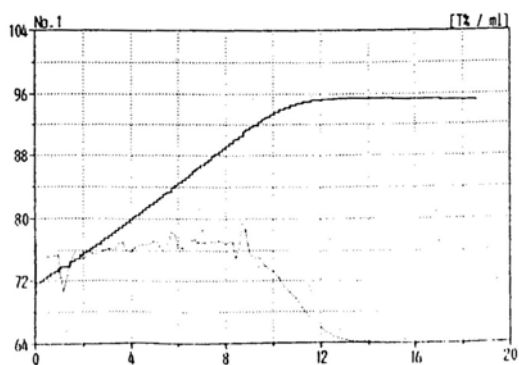
##### (1) Potentiometric titration



##### Measurement results

Sample No.	Sample volume (g)	Titration value (mL)	Content (mg/g)
1	0.5040	13.791	27.36
2	0.5028	13.766	27.38
3	0.5073	13.987	27.57
4	0.5028	13.848	27.54
Avg.			29.71 mg/g
Std. Dev.			0.11 mg/g
C.V.			0.37 %

##### (2) Photometric titration



## 6. Note

- 1) Quantification of alkali contained in liquid detergents for industrial use was conducted potentiometrically. As the results of measurement, the end points were not determined photometrically. It is assumed that the end point pH of this sample is around pH6 according to the measurement results by potentiometric titration. It is surmised that better results may be obtained if titration is conducted using an indicator, which can determine end point near pH6, though phenolphthalein (approximately pH8 – 9) was used for this photometric titration.

## Key words

Detergent, soap, alkali, neutralization titration, JIS K3304

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