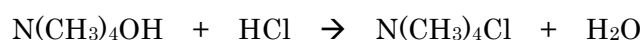


<b>AQUACOUNTER Application Sheet</b>	<b>COM series</b>	<b>DATA No. F9</b>	<b>1st edition</b>
<b>Electronics</b>	<b>Quantification of remover in photoresist remover solution</b>		

## 1. Measurement outline

Strong alkali solution is used as the remover for photoresist that remains on the board after development completion for boards for liquid crystal display, etc. Though the remover varies by the purpose, sodium hydroxide, potassium hydroxide and tetramethylammonium hydroxide (TMAH) are used. This section introduces an example in which TMAH is quantified by neutralization titration with hydrochloric acid titrant.



## 2. Reagents and Electrodes

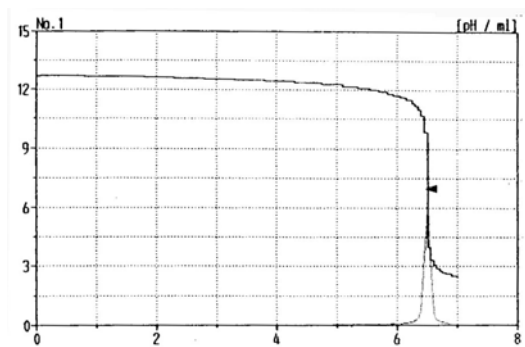
(1) Reagents	Titrant	1mol/L hydrochloric acid titrant
(2) Electrodes *standard accessories	Indicator electrode	*Glass electrode GE-101B to IE jack
	Reference electrode	*Reference electrode RE-201 to RE jack

## 3. Measurement conditions example (for COM-1600S)

<b>Master File No.1</b>	
<b>Condition file: 1</b>	
Method	AUTO
Amp No.	1
Buret No.	1
Meas Unit	pH
S-Timer	10 sec
CP	0 mL
DP	0 mL
End Sens	3000
Over mL	0.5 mL
Max Vol	20 mL
Mode No.	4
Unit	%
Blank	0
Factor	Titer of the titrant
Molarity	1
K	91.154
Formula	(D-B)×F×K×M/(S×10)

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

#### 4. Measurement example



#### Measurement results on TMAH

Sample No.	Sample volume (g)	Titration value (mL)	Concentration (%)
1	26.3336	6.816	2.3688
2	25.1631	6.509	2.3673
3	25.0091	6.474	2.3691
Avg.			2.3691 %
Std. Dev.			0.001 %
C.V.			0.040 %

#### 5. Outline

Tetramethylammonium hydroxide is a strongly basic reagent and it reacts quantitatively with hydrochloric acid. Measurement results were obtained with good repeatability. Caution is required since remover shows a titration curve with another titration end point near pH4 when it absorbs carbon dioxide gas in air to generate carbonate salt and is titrated with hydrochloric acid titrant.

#### Key words

Neutralization titration, tetramethylammonium hydroxide, TMAH, remover

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