

AQUACOUNTER Application Sheet	COM series	DATA No. K2	1st edition
Organic Acid		Quantification of formic acid	

1. Measurement outline

Formic acid (H·COOH) is a monobasic carboxylic acid, and it is classified as a lowest fatty acid. Formic acid slightly varies from other saturated fatty acids, and has considerably strong acidity (12-fold that of acetic acid) as well as reducing properties. It is decomposed into water and carbon dioxide gas when it is oxidized. It reduces ammoniacal silver nitrate.

This section introduces an example in which the sample containing formic acid as the main component, amine salts and copper ion was collected precisely for potentiometric titration with sodium hydroxide titrant.



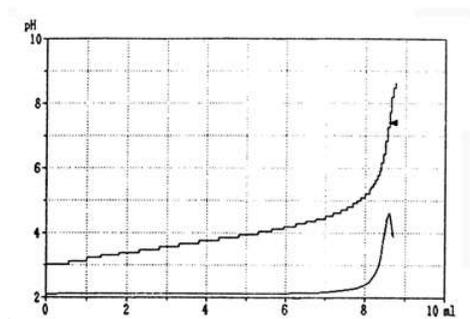
2. Reagents and Electrodes

(1) Reagents	Titrant	0.1mol/L sodium hydroxide 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)

(1) Method	Auto
(2) End Sens	500
(3) Mode	1
Pre Int	0
Del K	9
Del Sens	0
Int Time	1
Int Sens	3
Brt Speed	2
Pulse	40

4. Measurement example



Measurement results on formic acid

Sample No.	Sample volume (mL)	Titration value (mL)	Concentration (%)
1	1	8.577	3.965
2	1	8.601	3.976
3	1	8.565	3.960
Avg.			3.967 %
Std. Dev.			0.0081 %
C.V.			0.20 %

5. Outline

About the effect of interfering components

Though this sample contains copper ion (approximately 300ppm), it does not interfere with measurement. It is desired that titration be conducted with sodium carbonate if copper ion is contained in high concentration. Copper ion forms hydroxide in alkaline conditions and affect the titration curve of formic acid.

Key words

Quantification of formic acid, neutralization titration

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