Exp8: Determination of strength of a weak acid (CH_3COOH) against a strong alkali ($NaOH$) solution by measuring conductance

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Theory:

Method involved: Conductometric titration

Reactions:

a) $CH_3COOH \rightarrow CH_3COO^- + H^+$

b) $NaOH \rightarrow Na^+ + OH^-$

c) $CH_3COOH + NaOH \rightarrow CH_3COONa + H_2O$

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Experimental Data:

Table: Conductance-measurement of CH_3COOH and NaOH solutions using conductivity meter.

No. of reading	Vol. of CH_3COOH (in mL)	Vol. of NaOH (burette reading) (in mL)				Conductance (μs), Y
		Initial	Final	Difference	Total X	
1	10	0	0	0	0	102
2	10	0	2	2	2	96
3	10	2	4	2	4	117
4	10	4	6	2	6	144
5	10	6	8	2	8	166
6	10	8	10	2	10	188
7	10	10	11	1	11	212
8	10	11	12	1	12	260
9	10	12	13	1	13	321
10	10	13	14	1	14	389
11	10	14	15	1	15	466
12	10	15	16	1	16	550

Calculations:

The strength of supplied CH_3COOH solution:

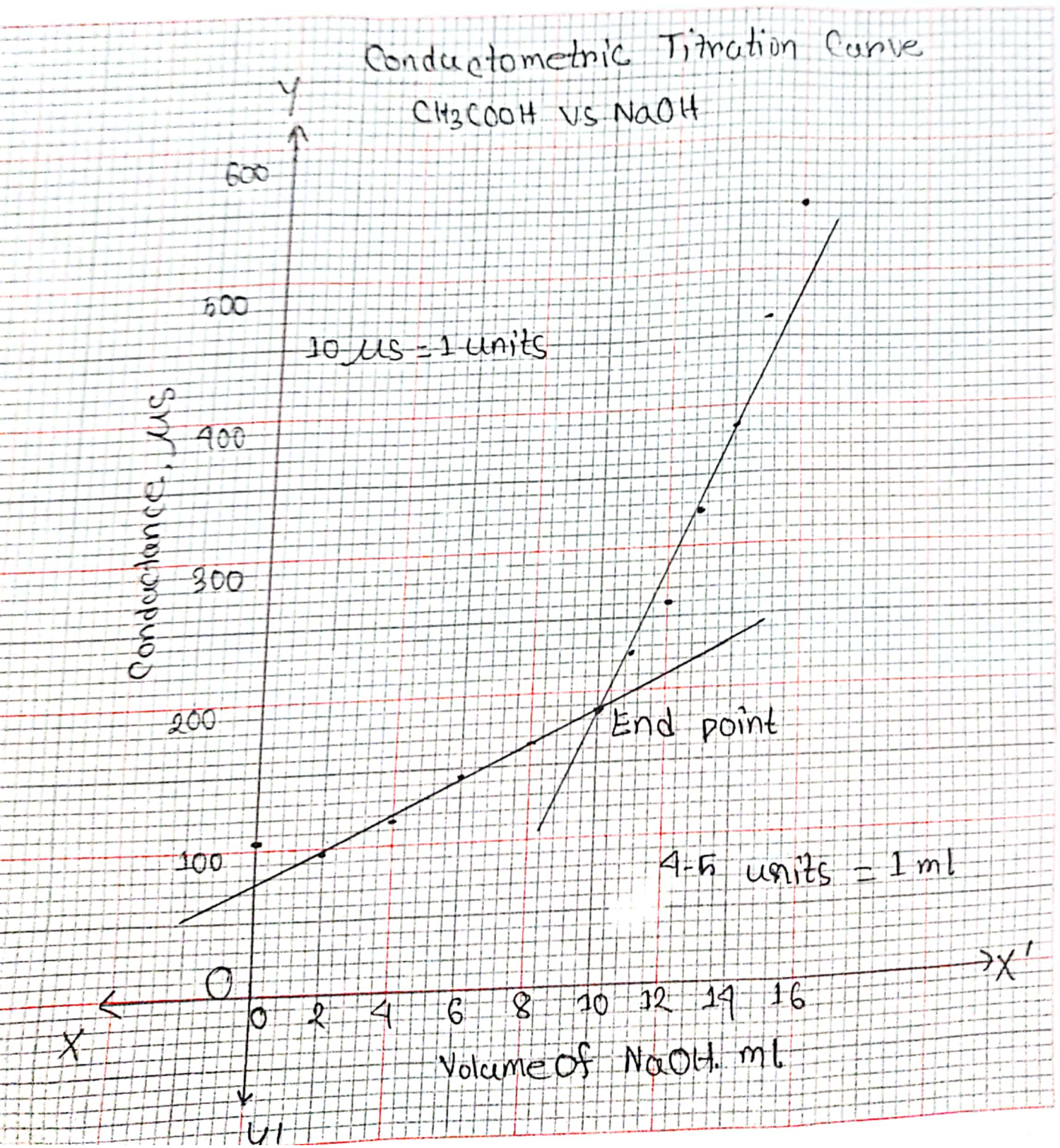
$V_{CH_3COOH} \times N_{CH_3COOH} = V_{NaOH} \times N_{NaOH}$

10 ml , 0.1 N

$\Rightarrow N'_{CH_3COOH} = \frac{10 \times 0.1}{10}$

$= 0.1\,N$

Results: The strength of supplied CH_3COOH solution is 0.1 N



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