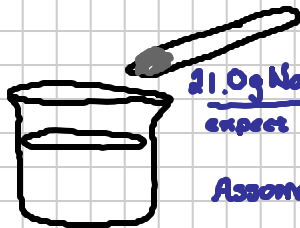


Lecture 14.5 · Buffering the Buffer 3: NaOH beyond the equivalence pt

Note Title

2/25/2012



21.0g NaOH added.
expect ↑ pH

Bother the Buffer calculations

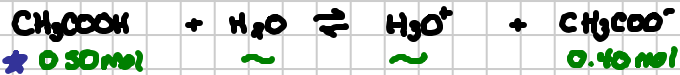
$$\text{moles NaOH} = \frac{21.0 \text{ g NaOH}}{40 \text{ g/mol}} = 0.525 \text{ mol NaOH}$$

Assume . No Δ Volume

1.00L

0.50M CH₃COOH ✓ ⇒ 0.50 mol
0.40M NaCH₃COO ✓ ⇒ 0.40 mol

neutralization



mol: ✗ 0.50 mol

change -0.525 mol

0.40 mol

+0.525 mol

Leftover NaOH

0.525 mol
- 0.500 mol

0.025 mol un-neutralized NaOH

$$[\text{OH}^-] = \frac{0.025 \text{ mol OH}^-}{1.00 \text{ L}} = 0.025 \text{ M}$$

$$\text{pOH} = -\log(0.025) = 1.60$$

$$\text{pH} = 14 - 1.60 = 12.40 \text{ (very basic)}$$

g NaOH	pH
0	4.66
4.0	4.85
6.0	4.95
10.0	5.11
16.0	5.66
18.0	5.98
20.0	9.35
21.0	12.40

pre-equiv. calculations

⊖ equiv. pt (16)

beyond equiv. pt excess OH⁻ det pH w/o ICE problem

