

Common Ion

① Need a RICE Table
AND
② Soluble/Strong \Rightarrow No RICE Table needed

Add Common ion into "I" initial.

Common ion

Mar 5-7:28 AM

1.169 (CI) 0.15 M Sodium Formate ^{SALT OF WE} Na For
WA \rightarrow 0.2 M Formic Acid. H For

$K_a = 1.8 \times 10^{-4}$

HFor	\rightleftharpoons	H^+	+	For^-
I 0.2		0		0
D -x		+x		+x
E 0.2-x		x		x

$\frac{x^2}{0.2-x} = 1.8 \times 10^{-4}$

3% ionized! $\frac{0.006}{0.2} \times 100$

$x^2 + 1.8 \times 10^{-4}x - 3.6 \times 10^{-5} = 0$

$x = 0.006 = [H^+]$

pH 0.2 HF = 2.22

HFor	\rightleftharpoons	H^+	+	For^-
I 0.2		0		+0.15
D -x		+x		+x
E 0.2-x		x		0.15+x

$\frac{x(0.15+x)}{0.2-x} = 1.8 \times 10^{-4}$

$x = 2.4 \times 10^{-4} = [H^+]$

pH = 3.62

less $[H^+]$ means.

(closer to 7)

Mar 5-7:42 AM

Buffer - chemical added to minimize drastic changes in pH.

Common ion

NaF → Acid HF (WA)
 → Base NaOH (JS)

Mar 5-7:56 AM

17.6c

125ml 0.05M HF $6.25 \times 10^{-2} \text{ mol} / 0.175$
 50ml 0.1M NaF $5 \times 10^{-2} \text{ mol} / 0.175$

$\text{mole} = M \times V$ * recalc new M *

HF = $3.57 \times 10^{-2} \text{ M}$
 NaF = $2.86 \times 10^{-2} \text{ M}$

HF → H⁺ + F⁻

I	3.57×10^{-2}	0	0	$+ 2.86 \times 10^{-2}$	$K_a = 6.8 \times 10^{-4}$
D	-x	+x	+x		
E	$3.57 \times 10^{-2} - x$	x	x	$2.86 \times 10^{-2} + x$	

$$\frac{x(2.86 \times 10^{-2} + x)}{(3.57 \times 10^{-2} - x)} = 6.8 \times 10^{-4}$$

$$x = 8.488 \times 10^{-4} = [\text{H}^+] \quad \text{pH} = 3.07$$

$$\frac{8.488 \times 10^{-4}}{3.57 \times 10^{-2}} \times 100 = 2.37\% \text{ approx}$$

Mar 5-7:59 AM

Hassel Hof-C time!

Henderson Hasselbach eqn

Buffers:

Weak acid \rightarrow HA \rightleftharpoons H⁺ + A⁻

Take some out.

Conjugate base

$$\frac{K_a}{1} = \frac{[H^+][A^-]}{[HA]}$$

Solved for [H⁺]

$$[H^+] = K_a \frac{[HA]}{[A^-]}$$

Mar 5-8:16 AM

$$[H^+] = K_a \frac{[HA]}{[A^-]}$$

$$-\log [H^+] = -\log \left[\frac{K_a [HA]}{[A^-]} \right]$$

Log Rule
 $\log AB = \log A + \log B$

$$pH = -\log K_a + -\log \frac{[HA]}{[A^-]}$$

$$pH = pK_a + \log \frac{[A^-]^{CB}}{[HA]^{WA}}$$

Henderson Hasselbach eqn for buffers.

WA and Salt of the WA

WA

Conj. Base

Mar 5-8:20 AM

0.15M NaF_{or} + 0.2M HF_{or} WA K_a = 1.8 × 10⁻⁴

(B) Salt of WA
 For⁻ + H⁺ → HF_{or}

BL B

$$pH = pK_a + \log \frac{b}{a}$$

$$pH = -\log(1.8 \times 10^{-4}) + \log \frac{0.15}{0.2}$$

pH = 3.62

Mar 5-8:28 AM

Blood 7.35 → 7.45

Breathing slowly ← → hyperventilates

Dyspnea
 Asthma

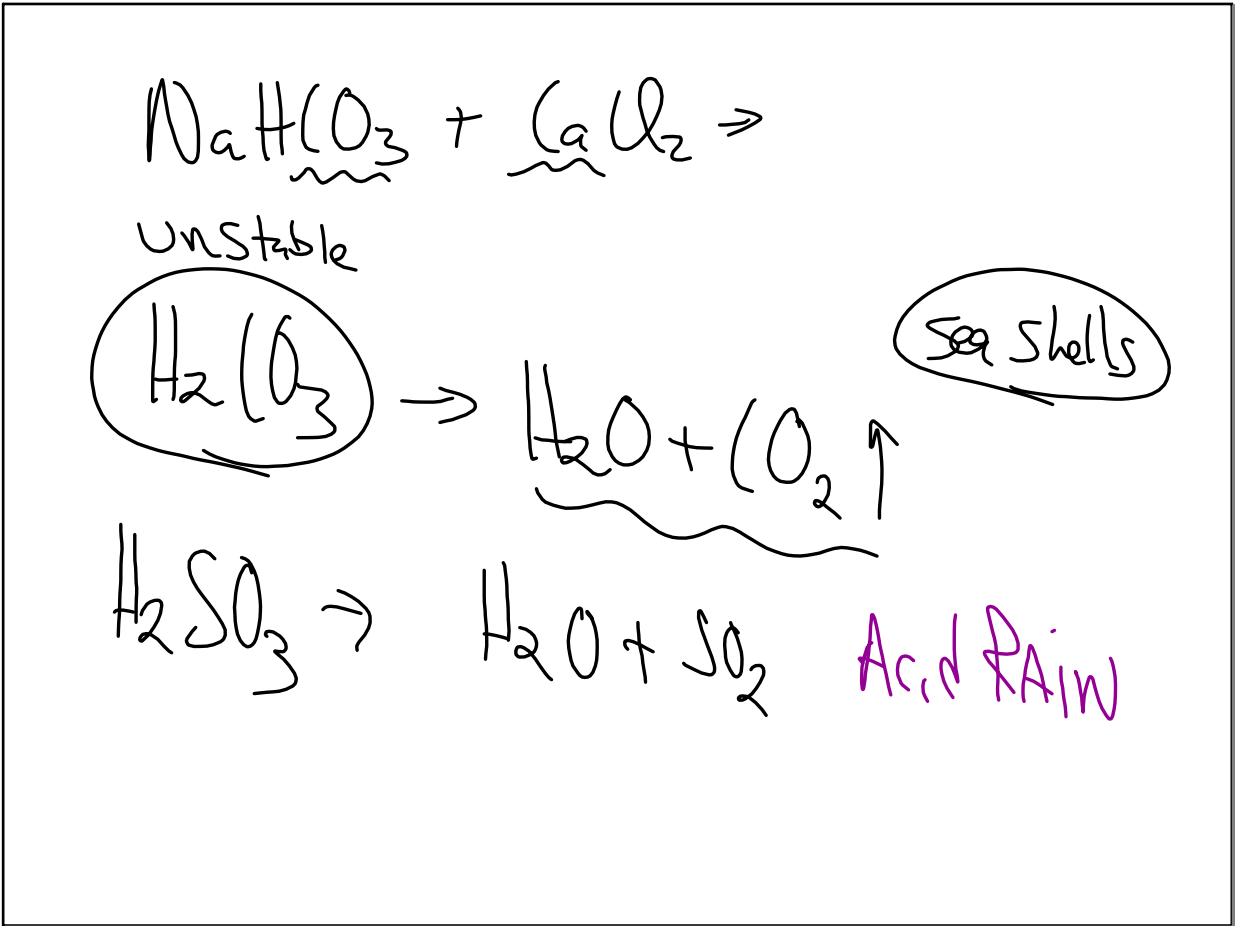
↑ CO₂ + H₂O
 H₂CO₃

NaHCO₃ 50mEq

Buffer

NaOH H₂CO₃

Mar 5-8:34 AM



Mar 5-8:41 AM

$17 / 21 + 30$
↑
need Math
Find M of solution
Add volumes

Mar 5-8:45 AM