

25g  $K_2CO_3$

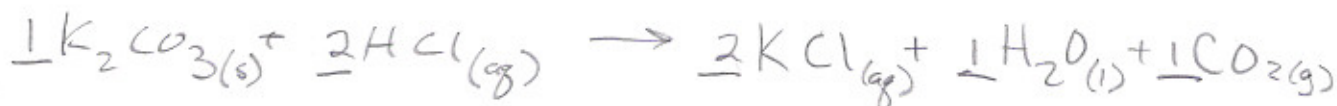
100ml of .500M HCl

2.40L @  $20^\circ C$  + 752 torr  $V_{pressure} = 22.34$  torr

Liters  $CO_2$ ?

Increase pressure  $H_2O$ ? Net Ionic?

- Balance reaction



Net Ionic



- Determine limiting reactant

$$\frac{25g K_2CO_3}{138.0g K_2CO_3} \left| \frac{1 mol K_2CO_3}{1 mol K_2CO_3} \right| \frac{1 mol CO_2}{1 mol K_2CO_3} = \underline{.181} \text{ moles } CO_2$$

$$\frac{.100L HCl}{1L} \left| \frac{.500 mol HCl}{2 mol HCl} \right| \frac{1 mol CO_2}{1 mol HCl} = \underline{.025} \text{ moles } CO_2$$

HCl is limiting reactant

Use LR moles to solve for volume.

$$V = \frac{nrt}{P} \Rightarrow \frac{(.025)(.08207)(293)}{\left(\frac{752-22.34}{760}\right)} = \boxed{.626 L CO_2 \text{ is produced}}$$

remember to subtract out  $H_2O$  vapor & convert to torr