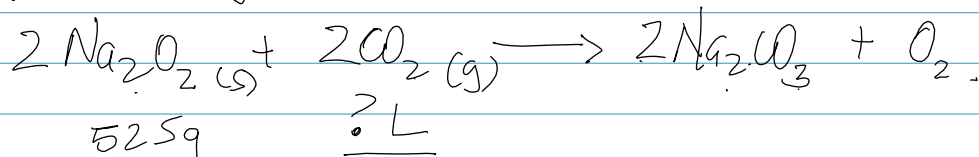


Gas Laws: Stoichiometry - ①

1) What volume, in L, of CO_2 can be consumed at STP by 525g Na_2O_2 .

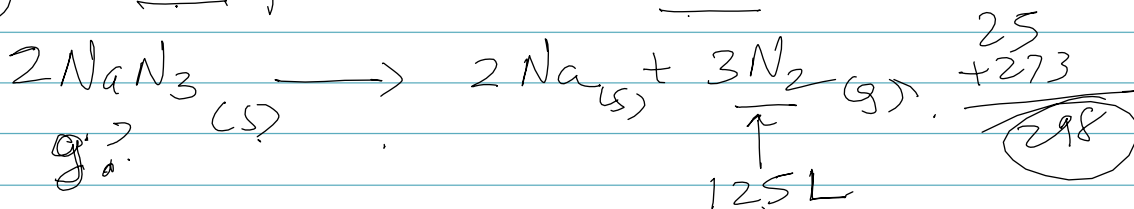


$PV = nRT$
 \uparrow
 # of mols.

$$V = \frac{nRT}{P} = \frac{6.73 \text{ mol} \times 0.0821 \frac{\text{L atm}}{\text{mol K}} \times 273 \text{ K}}{1 \text{ atm}}$$

$$= 150.9 \text{ L} \equiv \boxed{151 \text{ L}}$$

2) Calculate the amount of sodium azide (NaN_3) ~~needed~~ needed to produce enough gas for a 125L air bag at 1 atm pressure and 25°C.



$$PV = nRT \quad \uparrow$$

$$n = \frac{PV}{RT} = \frac{1 \text{ atm} \times 125 \text{ L}}{0.0821 \frac{\text{L atm}}{\text{mol K}} \times 298 \text{ K}}$$

$$= 5.109 \text{ mol N}_2$$

$$5.109 \text{ mol N}_2 \times \frac{2 \text{ mol NaN}_3}{3 \text{ mol N}_2} \times \frac{65.02 \text{ g NaN}_3}{\text{mol NaN}_3}$$

$$= 221.5 \text{ g} \equiv \boxed{222 \text{ g}}$$