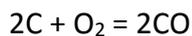
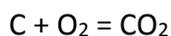


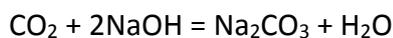
## Answer on Question #60099, Chemistry / Inorganic Chemistry

1. 1.00g of carbon is combusted in a limited supply of pure oxygen. 0.50g of the carbon combusts to form CO<sub>2</sub> and 0.50 g of the carbon combusts to form CO. The resultant mixture of CO<sub>2</sub> and CO is passed through excess NaOH(aq) and the remaining gas is then dried and collected. What is the volume of the remaining gas? (All gas volumes are measured at 25°C and 1 atmosphere pressure.)

### Solution:



If mixture of CO and CO<sub>2</sub> passed through a solution of NaOH:



CO + NaOH ≠ (no reaction) - remaining gas.

$$n(\text{CO}) = n(\text{C}) = \frac{m(\text{C})}{M(\text{C})} = \frac{0.5\text{g}}{12\text{g/mol}} = 0.0417 \text{ mol}$$

Find volume of CO at 25°C and 1 atmosphere pressure:

$$PV = nRT$$

$$V = \frac{nRT}{P}$$

$$V = \frac{0.0417 \times 0.082 \times 298}{1} = 1.019\text{L}$$

**Answer:** the volume of the remaining gas 1.019L.