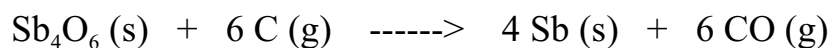


Example 2 discussed in class but not completed (you were supposed to complete it).

Given P, V and T data for the amount of CO produced determine how many moles of  $\text{Sb}_4\text{O}_6$  were required?



If we knew the moles of CO produced we could do a mole-to-mole stoichiometry problem.

We can determine the moles of CO given the P, V, T data using the Ideal Gas Law:

Use IGL to calculate the moles of CO

$$\begin{aligned} n &= \frac{PV}{RT} = \frac{(0.987 \text{ atm})(3.20 \text{ L})}{(0.0821 \text{ L}\cdot\text{atm}/\text{mol}\cdot\text{K})(300.15 \text{ K})} \\ &= 0.1281 \text{ mol CO} \end{aligned}$$

Convert the moles of CO to moles of  $\text{Sb}_4\text{O}_6$

$$\begin{aligned} ? \text{ mol } \text{Sb}_4\text{O}_6 &= 0.1281 \text{ mol CO} \times \frac{1 \text{ mol } \text{Sb}_4\text{O}_6}{6 \text{ mol CO}} \\ &= 0.02136 \text{ mol } \text{Sb}_4\text{O}_6 \\ &= 0.0214 \text{ mol } \text{Sb}_4\text{O}_6 \end{aligned}$$