Answer on Question #45226, Chemistry, Inorganic Chemistry

When Phosphorus burns in a limited amount of Oxygen, phosphorus (III) oxide is formed.

$$4P + 3O_2 \rightarrow 2P_2O_3$$

In this reaction, 4 moles(124 g) of Phosphorus react with 3 moles(96 g) of Oxygen. Then, we have the follow proportion:

124 g P – 96 g O_2

10 g P – x g O_2

$$x = \frac{10 * 96}{124} = 7{,}74\ g$$

Therefore, Oxygen is limited reactant.