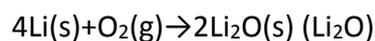


## Answer on the question #55663 - Chemistry - General chemistry

### Question:

For each of the following reactions, calculate the grams of indicated product when 16.9 g of the first reactant and 10.4 g of the second reactant is used:



### Solution:

Let's calculate the number of the moles for Li and Oxygen that are put into reaction:

$$n(\text{Li}) = \frac{m}{M} = \frac{16.9}{6.94} = 2.44 \text{ mol}$$

$$n(\text{O}_2) = \frac{m}{M} = \frac{10.4}{32} = 0.325 \text{ mol}$$

As with the reaction equation 4 moles of Li reacts with 1 mole of Oxygen, one can note that Li is in excess:  $\frac{n(\text{Li})}{4} = \frac{2.44}{4} = 0.61 \text{ mol}$ .

If we assume, that all the oxygen will react and the yield of reaction is 100%, then the number of the moles of  $\text{Li}_2\text{O}$  is:

$$n(\text{Li}_2\text{O}) = 2 \cdot n(\text{O}_2) = 2 \cdot 0.325 = 0.65 \text{ mol}$$

Then the mass of  $\text{Li}_2\text{O}$  is:

$$m(\text{Li}_2\text{O}) = n(\text{Li}_2\text{O}) \cdot M(\text{Li}_2\text{O}) = 0.65 \cdot 29.88 = 19.4 \text{ g}$$

**Answer:** 19.4 g of  $\text{Li}_2\text{O}$  is produced