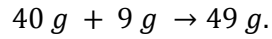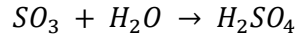**Answer on Question #68931-Physics-Other**

What is the weight% of oxygen in 109% olium?

Solution

If we have 100 g sample of olium the mass of water will be 9 g.

$$SO_3 + H_2O \rightarrow H_2SO_4$$

$$40\ g + 9\ g \rightarrow 49\ g.$$

We have $40\ g$ of SO_3 and $60\ g$ of H_2SO_4 in olium.

The number of moles H_2SO_4 is

$$n_1 = \frac{60}{98}.$$

The number of moles of oxygen in H_2SO_4 is

$$4n_1 = 4\left(\frac{60}{98}\right).$$

The number of moles SO_3 is

$$n_2 = \frac{40}{80}.$$

The number of moles of oxygen in SO_3 is

$$3n_2 = 3\left(\frac{40}{80}\right).$$

Mass of oxygen is

$$m(O) = \left(4\left(\frac{60}{98}\right) + 3\left(\frac{40}{80}\right)\right)16 = 63.18\ g.$$

Thus, the weight% of oxygen in 109% olium is

$$\frac{63.18\ g}{100\ g}100\% = 63.18\%.$$

Answer: 63.18%.

Answer provided by https://www.AssignmentExpert.com