## Answer on Question #81671, Chemistry / General Chemistry

A mixture of powdered aluminum and tin was burned in an atmosphere of oxygen in a way such that the resulting oxides could be collected and weighed 0.5488g; the mixture of Al_2O_3 and SnO_2 weighed 0.7712g. Calculate the weight and percent of Al and Sn in the initial mixture.

Solution:

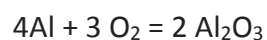Weight of Sn is X and weight of Al is (0.5488-x)

y

$Sn + O_2 = SnO_2$
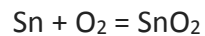
M (SnO_2) =150.67 g/mol

M (Sn) =118.69 g/mol

y=x*150.67/118.69=1.2694x

z

$4Al + 3 O_2 = 2 Al_2O_3$

M (Al) = 4*26.98

M (Al_2O_3) = 2*101.93

z= ((0.5488-x)*2*101.93)/4*26.98=(0.5488-x)*203.86/107.92=1.0366-1.8889x

y + z = 0.7712

1.2694x + 1.0366 - 1.8889x = 0.7712

0.6195x = 0.2654

x = 0.4284

Weight of **Sn is 0.4284g**

(0.5488-0.4284) = 0.1204

Weight of **Al is 0.1204g**