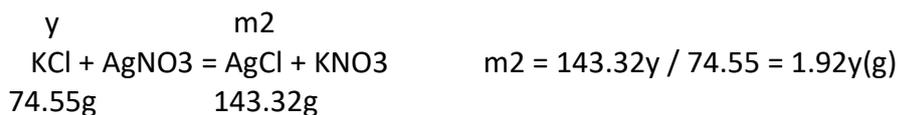


a 0.8870 g sample containing only NaCl and KCl was treated with AgNO₃. the AgCl formed had a mass of 1.913 g. Calculate the %Na and %K in the sample.

Solution:

Let's take $m(\text{NaCl}) = x$ and $m(\text{KCl}) = y$

The resulting chemical reactions:



$$m1 + m2 = 1.913 \text{ g (according to the condition of the problem)}$$

$$2.45x + 1.92y = 1.913$$

$$m(\text{NaCl}) + m(\text{KCl}) = 0.8870 \text{ g (according to the condition of the problem)}$$

$$x + y = 0.8870$$

We get the system of equations:

$$2.45x + 1.92y = 1.913$$

$$x + y = 0.8870$$

Let's solve it:

$$2.45(0.8870 - y) + 1.92y = 1.913$$

$$2.173 - 0.53y = 1.913$$

$$y = 0.49$$

$$x = 0.887 - 0.49 = 0.397$$

Let's calculate the %Na and %K in the sample:

$$\% \text{Na} = (0.397 / 0.8870) * 100\% = 44.76\%$$

$$\% \text{K} = (0.49 / 0.8870) * 100\% = 55.24\%$$

Answer: %Na = 44.76% ; %K = 55.24%