

Answer on Question #47954 - Chemistry – Other

Question

an alloy of silver and copper weighs 28 ounces and 25 ounces in water, where copper losses $\frac{1}{9}$ of its weighs and silver losses $\frac{1}{10}$ of its weighs. how much of each metal is in the alloy?

Answer:

Assume that x is the mass of silver in the alloy and y is the mass of copper in the alloy. Make system of equations and solve it:

$$\begin{cases} x + y = 28 \\ \frac{1}{10}x + \frac{1}{9}y = 28 - 25 = 3 \end{cases}$$

$$\begin{cases} x + y = 28 \\ \frac{1}{10}x + \frac{1}{9}y = 3 \end{cases}$$

$$\begin{cases} x + y = 28 \\ 9x + 10y = 270 \end{cases}$$

$$\begin{cases} x = 10 \\ y = 18 \end{cases}$$

So, the mass of silver in the alloy is 10 ounces and the mass of copper in the alloy is 18 ounces.

Answer: 10 ounces of silver and 18 ounces of copper are in the alloy.