A sample of 18K gold contains the following by mass: 18.0 grams gold. 3.0 grams silver, and 3.0 grams copper. What is the percentage of gold?

Solution

Total mass of the sample:

$$m_{sample} = m_{gold} + m_{silver} + m_{cooper}$$

Calculating:

$$m_{sample} = 18.0 + 3.0 + 3.0 = 24.0\, g$$

Mass percentage of gold in sample can be calculated as:

$$\omega_m(gold) = \frac{m_{gold}}{m_{sample}} * 100\,\%$$

Calculating:

$$\omega_m(gold) = 18.0/24.0 * 100\,\% = 75\,\%$$

Answer: mass percentage of gold in sample is **75%**