Answer on Question #44802 - Chemistry – Physical Chemistry

21.6g of silver coin is dissolved in HNO3.when NaCl is added to this solution ,all silver is precipitated as AgCl.the weight of AgCl is found to be 14.35g then what will be the % of silver in coin?

Solution

Ag $\xrightarrow{+HNO_3}$ AgNO$_3$ $\xrightarrow{+NaCl}$ AgCl$\downarrow$

1 mole   1 mole

ν (AgCl) = $\dfrac{14,35\ g}{143,4\ g/mole}$ ≈ 0,1 mole

ν (Ag) = ν (AgCl) = 0,1 mole

m (Ag) = ν (Ag) · M (Ag) = 0,1 mole · 107,9 g/mole = 10,79 g

w (Ag) = m (Ag) / m (silver coin) = 10,79 g / 21,6 g ≈ 0,5 or 50%.

Answer: 50%.