# Answer on Question #56130 - Chemistry - General chemistry

NaCl-58.4 g/mol - 60.7%Cl

MgCl2- 95.2g.mol - 74.5% Cl

Fecl3- 162.2g/mol - 65.6% Cl

assume that you had 10.00g of each chloride compound

A) how many moles of each compound would this represent in each case

B) how many moles of Cl would be present in each case

C) how many moles of AgCl would you expect to recover from the precipitation reaction in each case?

D) what mass of AgCl (MW=143.3g/mol) would this represent for each case

**Solution**

A)

$n(NaCl) = m/M = 10 / 58.4 = 0.17$ (mol)

$n(MgCl_2) = m/M = 10 / 95.2 = 0.105$ (mol)

$n(FeCl_3) = m/M = 10 / 162.2 = 0.06$ (mol)

B)

$m(Cl) = w(Cl)*m(NaCl) = 0.607 * 10 = 6.07$ (g)

$n(Cl) = m/M = 6.07 / 35.5 = 0.17$ (mol)

$m(Cl) = w(Cl)*m(MgCl_2) = 0.745 * 10 = 7.45$ (g)

$n(Cl) = m/M = 7.45 / 35.5 = 0.21$ (mol)

$m(Cl) = w(Cl)*m(FeCl_3) = 0.656 * 10 = 6.56$ (g)

$n(Cl) = m/M = 6.56 / 35.5 = 0.18$ (mol)

C)

$NaCl + Ag^+ = AgCl + Na^+$
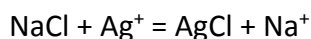
$N(AgCl) = n(NaCl) = 0.17$ (mol)

$m(AgCl) = n*M = 0.17 * 143.3 = 24.361$ (g)

$MgCl_2 + 2Ag^+ = 2AgCl + Mg^{2+}$
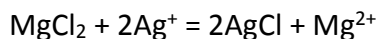
$N(AgCl) = 2 * n(MgCl_2) = 0.21$ (mol)

$m(AgCl) = n*M = 0.21 * 143.3 = 30.093$ (g)

$FeCl_3 + 3Ag^+ = 3AgCl + Fe^{3+}$
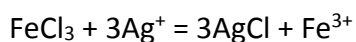
$N(AgCl) = 3*n(FeCl_3) = 0.18$ (mol)

$m(AgCl) = n*M = 0.18 * 143.3 = 25.794$ (g)