Answer on Question 76561 in General Chemistry

.m(AgNO$_3$)=0.401 g

.m(MgCl_2)=0.253 g
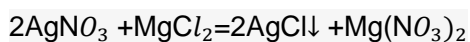
.m(AgCl)=0.292 g

percent yield for the reaction=?

Solution:

Write the equation of the reaction

2AgNO$_3$ +MgCl_2=2AgCl↓ +Mg(NO$_3$)$_2$

Find the amount of substance

.n(AgNO$_3$) = $\frac{m(AgNO_3)}{Mr}$ =$\frac{0.401}{170}$ =0.002 mol

Mr(AgNO$_3$)= Ar(Ag)+Ar(N)+3 Ar(O)=108+14+3×!6=170

.n(MgCl_2) = $\frac{m(MgCl_2)}{Mr}$=$\frac{0.253}{95}$=0.003

Mr(MgCl_2)= Ar(Mg)+ 2Ar(Cl)=24=2×35.5=95

MgCl_2 in excess

. n (AgCl)= n(AgNO$_3$) =0.002 mol

Theoretical yield m(AgCl theor)=n×Mr=0.002× 153.5=0.307g

Mr (AgCl)=Ar (Ag) +Ar (Cl)=108 +35.5=153.5

Percent yield= $\frac{m}{m(theor)}$ ×100%= $\frac{0.292}{0.307}$ × 100%=95 %

Answer provided by AssignmentExpert.com