Answer on Question#49043 – Chemistry – Inorganic Chemistry

Aqueous magnesium chloride reacts with the aqueous sodium carbonate and yields a soluble and an insoluble compound. write the double displacement equation and balance it. if 15.0g of each react is given, identify the limiting reactant and calculate the yield of the insoluble compound.

Solution:

$MgCl_2+Na_2CO_3 \rightarrow MgCO_3(s)+2NaCl$;

$MgCl_2$ - magnesium chloride;

Na_2CO_3 - sodium carbonate;

$MgCO_3$ – (insoluble compound);

$\nu = \frac{m}{M}$; ν - mole (mol); m – mass (g); M – molar mass (g/mol);

$M(Na_2CO_3)=106$ g/mol; $M(MgCl_2)=95$ g/mol;

$\nu(MgCl_2)=0.158$ mol; $\nu(Na_2CO_3)= 0.142$ mol;

Na_2CO_3 - the limiting reactant;

$M(MgCO_3)=84$ g/mol; $\nu(MgCO_3)= \nu(Na_2CO_3)= 0.142$ mol;

$m(MgCO_3)=11.93$ g.

Answer: $m(MgCO_3)=11.93$ g; $\nu(MgCO_3)= 0.142$ mol;