Answer on Question#57649 – Chemistry- General chemistry

Question: Assuming all of the metal ions are from nitrate compounds (ie Pb(NO3)2 aq)

what would be the balanced overall equation and the net ionic equation for the reactions occurring when HCl is added to each of the metal solutions.

(3 overall equations and 3 NIEs)

Answer:

1) $Pb(NO3)_2 + 2HCl = PbCl_2\downarrow + 2HNO_3$
   $Pb^{2+} + 2NO_3^- + 2H^+ + 2Cl^- = PbCl_2\downarrow + 2NO_3^- + 2H^+$
   $Pb^{2+} + 2Cl^- = PbCl_2\downarrow$

2) $AgNO_3 + HCl = AgCl\downarrow + HNO_3$
   $Ag^+ + NO_3^- + H^+ + Cl^- = AgCl\downarrow + NO_3^- + H^+$
   $Ag^+ + Cl^- = AgCl\downarrow$

3) $Hg_2(NO_3)_2 + 2HCl = Hg_2Cl_2\downarrow + 2HNO_3$
   $Hg_2^{2+} + 2NO_3^- + 2H^+ + 2Cl^- = Hg_2Cl_2\downarrow + 2NO_3^- + 2H^+$
   $Hg_2^{2+} + 2Cl^- = Hg_2Cl_2\downarrow$