Answer on Question #75407, Chemistry / General Chemistry

What is the full ionic equation and net equation of zinc bromide + ammonium phosphate ?

Solution:

The chemical formula of zinc bromide – $ZnBr_2$

The chemical formula of ammonium phosphate – $(NH_4)_3PO_4$

Now we write equations:

To simplify the solution, we first write down the molecular equation:

$$3ZnBr_{2(aq)} + 2(NH_4)_3PO_{4(aq)} = Zn_3(PO_4)_{2\ (s)} + 6NH_4Br_{(aq)}$$

(conventional symbols of indices: (aq) – aqueous solution, (s) – solid form)

Full ionic equation:

$$3Zn^{2+}{}_{(aq)} + 6Br^{-}{}_{(aq)} + 6NH_4^{+}{}_{(aq)} + 2PO_4^{3-}{}_{(aq)} = Zn_3(PO_4)_{2\ (s)} + 6NH_4^{+}{}_{(aq)} + 6Br^{-}{}_{(aq)}$$

Net equation:

$$3Zn^{2+}{}_{(aq)} + 2PO_4^{3-}{}_{(aq)} = Zn_3(PO_4)_{2\ (s)}$$