

Answer on Question #72082, Chemistry / General Chemistry

Question:

Show the molecular formula for the following: (Show work)

- 1) Sulfuric Acid
- 2) Hydrosulfuric Acid
- 3) Cobalt (II) Sulfate
- 4) Potassium Sulfate
- 5) Phosphorus Pentachloride

Answer:

N.B.: In all of these cases the total charge of molecules must be zero.

- 1) H_2SO_4

“Sulfuric” = means the sulfur with the most positive electric charge (+6) and some oxygen atoms to form the stable anion. For Sulfur(+6) it will be SO_4^{2-} - the “sulfate-anion”. Others - are hydrogen atoms (H^+), according to charges.

- 2) H_2S

“Hydro” = means that no oxygen atoms should be, and the sulfur has the most negative electric charge (-2). Others - are hydrogen atoms (H^+), according to charges.

- 3) CoSO_4

Co (II) = Co^{2+} - cation. Sulfate = SO_4^{2-} - anion. Ratio 1 : 1, according to charges.

- 4) K_2SO_4

Potassium = K^+ - cation. Sulfate = SO_4^{2-} - anion. Ratio 2 : 1, according to charges.

- 5) PCl_5

“Penta” = 5. “Chloride” = chlorine in the most negative electric charge (-1).