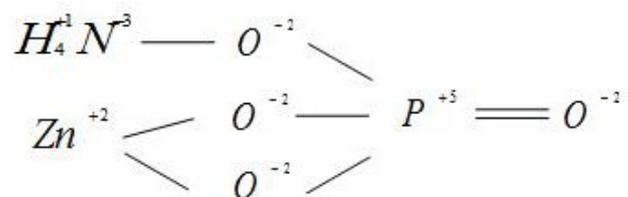


What is the oxidation number of N or P in following compound: $ZnNH_4PO_4$

Solution

This compound is the mixed salt of orthophosphoric acid, Zinc and ammonium cation.



NH_4^+ is a derivative of ammonia NH_3 . Hydrogen oxidation number is always 1 in compounds with nitrogen. Based on the fact that the molecule is electrically neutral, you get

$$X + 3 = 0$$

$$X = -3$$

X - Oxidation number of N

The same principle defines oxidation number of P. Oxidation number of Zn = 2, O = -2

$$-3 + 4 \cdot 1 + 2 + 4 \cdot (-2) + x = 0$$

$$X = 5$$

Answer: oxidation number of: N=-3, P=+5

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