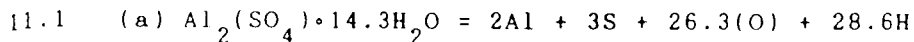
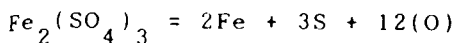


11.1 (a) Using atomic weights from the table of elements given in Table A7, calculate the molecular and equivalent weights of alum (aluminum sulfate), ferric sulfate, and soda ash (sodium carbonate). The formulas of these compounds are given in Table 11.1. (b) Using atomic weights, compute the equivalent weights of the ammonium ion, bicarbonate ion, calcium carbonate, and carbon dioxide. Values are given in Table 11.2.



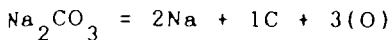
$$\text{MW} = 2 \times 27.0 + 3 \times 32.1 + 26.3 \times 16.0 + 28.6 \times 1.0 = 600$$

$$\text{EW} = 600/6 = 100$$



$$\text{MW} = 2 \times 55.8 + 3 \times 32.1 + 12 \times 16.0 = 400$$

$$\text{EW} = 400/6 = 66.7$$



$$\text{MW} = 2 \times 23.0 + 12.0 + 3 \times 16.0 = 106$$

$$\text{EW} = 106/2 = 53$$

$$(b) \quad \text{EW of } \text{NH}_4^+ = (14.0 + 4.0)/1.0 = 18.0$$

$$\text{EW of } \text{HCO}_3^- = (1.0 + 12.0 + 48.0)/1.0 = 61.0$$

$$\text{EW of } \text{CO}_3^{2-} = (12.0 + 48.0)/2.0 = 30.0$$

Since CO_2 reacts with H_2O to form H_2CO_3 , the electrical charge of CO_2 after dissolution is taken as 2.

$$\text{EW of } \text{CO}_2 = (12.0 + 32.0)/2 = 22.0$$

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