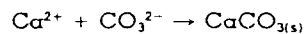


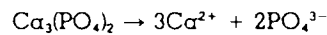
Example 1-1

Find the normality of the following solutions:

1. 60 mg CO_3^{2-} /liter, given that CO_3^{2-} participates in the precipitation reaction,



2. 155 mg $\text{Ca}_3(\text{PO}_4)_2$ /liter given that $\text{Ca}_3(\text{PO}_4)_2$ participates in the dissolution reaction,



Solution

1. The molecular weight of CO_3^{2-} is 60.

$$\begin{aligned} \text{Gram equivalent weight} &= \frac{\text{gram molecular weight}}{\text{ion charge}} = \frac{60 \text{ g/mole}}{2 \text{ eq/mole}} = 30 \text{ g/eq} \\ &= 30 \text{ mg/meq} \end{aligned}$$

$$\text{Normality} = \frac{60 \text{ mg/liter}}{30 \text{ mg/meq}} = 2 \text{ meq/liter}$$

2. The molecular weight of $\text{Ca}_3(\text{PO}_4)_2$ is 310. Because each $\text{Ca}_3(\text{PO}_4)_2$ forms six positive and six negative charges,

$$\text{Gram equivalent weight} = \frac{310 \text{ g/mole}}{6 \text{ eq/mole}} = 51.67 \text{ g/eq} = 51.67 \text{ mg/meq}$$

$$\text{Normality} = \frac{155 \text{ mg/liter}}{51.67 \text{ mg/meq}} = 3 \text{ meq/liter}$$