Answer on Question #53093 – Chemistry – General chemistry

Task: How many magnesium ions are there in 7.30mol Mg_4N_3? How many nitride ions are there in 7.30 mol Mg_4N_3?

Solution:

1. Each mole of certain substance contains $6{,}022\times10^{23}$ molecules of substance (The Avogadro constant). In one molecule of Mg_4N_3 there are four ions of magnesium. According to this, the amount of Mg ions will be:

$$n(Mg) = 6{,}022 \times 10^{23} \times 4 = 24{,}088 \times 10^{23}\ ions$$

2. The same situation with nitride ions:

$$n(N) = 6{,}022 \times 10^{23} \times 3 = 18{,}066 \times 10^{23}\ ions$$

Answer:

There are $24{,}088\times10^{23}$ ions of magnesium and $18{,}066\times10^{23}$ ions of nitride.