

Fe= 1.25g

S= 1.07 g

= 2.32 g TOTAL

Find the following using this information:

1.) Empirical formula

2.) Formula name

3.) Charge on each element

Solution:

1) We find the molar ratio of iron and sulfur based on the data on the masses of these elements: $n(\text{Fe}) = \frac{m(\text{Fe})}{M(\text{Fe})} = \frac{1.25}{56} = 0.02$ mol; $n(\text{S}) = \frac{m(\text{S})}{M(\text{S})} = \frac{1.07}{32} = 0.03$ mol;

$n(\text{Fe}):n(\text{S}) = 0.02:0.03 = 1:1.5 = 2:3$.

Thus, the formula of iron sulphide: Fe_2S_3 .

2) Name of compound: iron (III) sulphide.

3) The charge on each element, based on the knowledge that the atom is an electrically neutral particle, is the following: $\text{Fe}^{3+}_2\text{S}^{2-}_3$.

Answer: 1) Fe_2S_3 . 2) iron (III) sulphide. 3) $\text{Fe}^{3+}_2\text{S}^{2-}_3$.

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