

Answer on Question #57052 - Chemistry — General Chemistry

Question:

Calculate the empirical formula of the following compound containing 15.8% carbon and 84.2% sulfur.

Solution:

$$\omega(\text{C}) = 15,8\%; \quad \omega(\text{S}) = 84,2\%.$$

$$x(\text{C}):y(\text{S}) = \frac{\omega(\text{C})}{M(\text{C})} : \frac{\omega(\text{S})}{M(\text{S})} = \frac{15,8}{12} : \frac{84,2}{32} = 1,32 : 2,63 = 1 : 2$$

$$x(\text{C}):y(\text{S}) = 1 : 2; \quad \text{C}_x\text{S}_y = \text{CS}_2$$

Answer: empirical formula of the compound is CS₂.