

Question #81276, Chemistry / General Chemistry

Calculate the percentage by mass of the indicated element in the following compounds:

(a) oxygen in C_2H_5COOH .

(b) oxygen in $HC_6H_7O_6$.

(c) oxygen in sodium sulfate.

Answer:

Formula: $W_{\%} = m_x \times 100 \% / M_r$

(a) oxygen in C_2H_5COOH .

$$M_r = (12 \times 3) + (1 \times 6) + (16 \times 2) = 74$$

$$m_o = 16 \times 2 = 32$$

$$W_{\%O} = 32 \times 100 / 74 = 43,24 \% (O)$$

(b) oxygen in $HC_6H_7O_6$.

$$M_r = (12 \times 6) + (1 \times 8) + (16 \times 6) = 176$$

$$m_o = 16 \times 6 = 96$$

$$W_{\%O} = 96 \times 100 / 176 = 54,54 \%$$

(c) oxygen in sodium sulfate.



$$M_r = (23 \times 2) + (32 \times 1) + (16 \times 4) = 160$$

$$m_o = 16 \times 4 = 64$$

$$W_{\%O} = 64 \times 100 / 160 = 40 \%$$

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