

Question #81533, Chemistry / Physical Chemistry

Question:

For the reaction $\text{IO}_3^- + 5\text{I}^- + 6\text{H}^+ \rightarrow 3\text{I}_2 + 3\text{H}_2\text{O}$ the rate of disappearance of I^- at a particular time and concentration is $5.0 \times 10^{-3} \text{ Ms}^{-1}$. What is the rate of disappearance of H^+ in Ms^{-1} ?

6.0×10^{-3}

3.0×10^{-3}

-5.0×10^{-3}

1.0×10^{-3}

5.0×10^{-3}

Solution:

$$V = (-1/5) * (dc(\text{I}^-)/dt) = (-1/6) * (dc(\text{H}^+)/dt)$$

Let $dc(\text{H}^+)/dt = x$, then

$$(-1/5) * 5.0 \times 10^{-3} = (-1/6) * x$$

$$x = 6.0 \times 10^{-3}$$

$$\text{Answer: } (dc(\text{H}^+)/dt) = 6.0 \times 10^{-3}$$

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