Answer on Question #77059, Chemistry / Organic Chemistry

Question:

Temperature coefficient of a reaction γ = 4, rate of reaction at 40 degree Celsius is 0.5 mol/(l·s), what will be the rate of reaction at 80 degree Celsius?

Solution:

The Van 't Hoff rule for the rate of reaction:

$r_2 = r_1 \cdot \gamma^{\frac{T_2-T_1}{10}}$, where

r_1 - rate of reaction at temperature T_1

r_2 - rate of reaction at temperature T_2

γ - temperature coefficient of a reaction

So:

$r_2 = 0.5 \cdot 4^{\frac{80-40}{10}} = 0.5 \cdot 4^4 = 128$ mol/(l·s)

Answer:

128 mol/(l·s)

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