

Review

- How is a reaction rate measured?
- What must occur for successful reaction?
- What is the activation energy of a reaction?
- What is an activated complex?

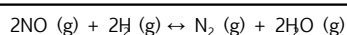
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Describe, in detail, how each of the following would affect the rate of a reaction:

- Heating the reaction.
- Crushing the reactants.
- Adding a catalyst.

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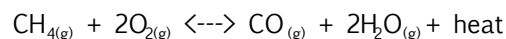
Calculate the equilibrium constant:



- Calculate K_{eq} if
- $[\text{NO}] = 1.5 \times 10^{-2} \text{M}$,
- $[\text{H}_2] = 2.35 \times 10^{-3} \text{M}$,
- $[\text{N}_2] = 8.24 \times 10^{-2} \text{M}$,
- $[\text{H}_2\text{O}] = 6.03 \times 10^{-2} \text{M}$.
- Are the reactants or products favored at equilibrium? How do you know?
- The magnitude (value) of K_{eq} is dependent only on which variable?

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Answer the following with shift left or shift right or no change & explain your answer:



- Which way will the reaction shift if CO_2 added?
- Which way if the temperature is raised?
- Which way if water is removed?
- Which way if the volume is increased?

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Write the K_{sp} expressions for the slightly soluble salt:

- Mg(OH)_2

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Rate Laws

- The following experimental data were obtained for reaction at 250 K : $\text{F}_2 + 2 \text{ClO}_2 \rightarrow 2 \text{FCLO}_2$

| [F ₂] | [ClO ₂] | Rate M/s |
|-------------------|---------------------|------------------------|
| 0.10 | 0.01 | 1.2 x 10 ⁻³ |
| 0.10 | 0.04 | 4.8 x 10 ⁻³ |
| 0.20 | 0.01 | 4.8 x 10 ⁻³ |

- Write the rate law for this reaction.

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Ksp

Calculate the solubility (in mol/L) of barium sulfate. The solubility product constant for barium sulfate is 1.08×10^{-10}

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Ksp

Calculate the Ksp for AgBr if a saturated solution has a concentration of 7.35×10^{-7}

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