



Reaction Rates and Collision Theory

SCH 4U1

Mr. Dvorsky

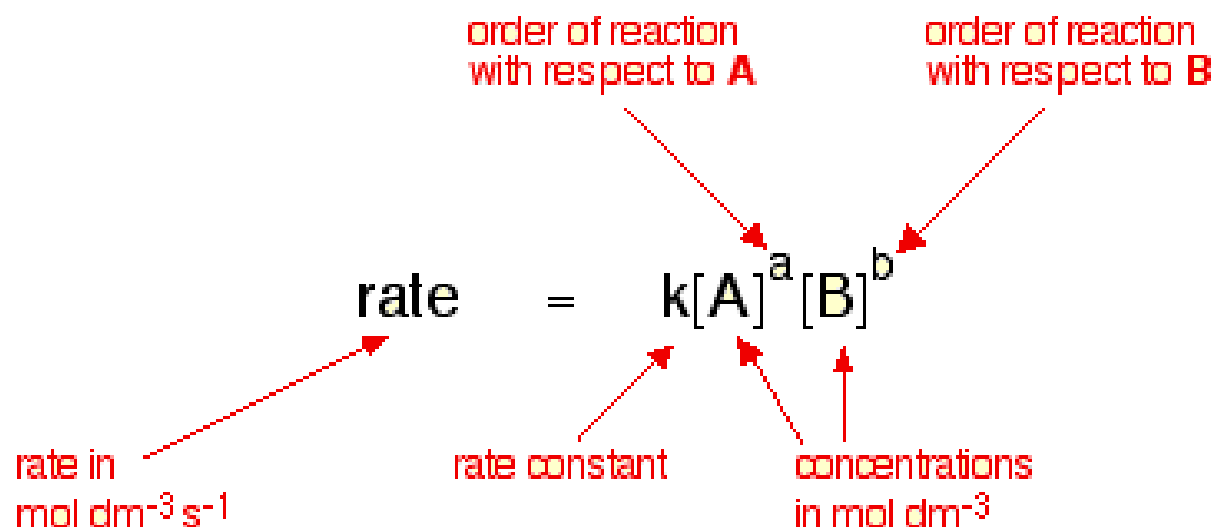
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Collision Theory and Rate of Reaction

- In order for a reaction to occur, you need reactant particles to collide.
- Reaction rate tends to increase with concentration of reactants. -More chance of collisions.



Collision Theory and Rate of Reaction



-recall rate law. If A is first order, it means the reaction rate will double if the conc'n of A doubles. Therefore the rate is dependent on the reactant's conc. Likewise second or third order, etc.

Collision Theory and Rate of Reaction

- What about if the order of reaction was zero?
What would that mean?

Concepts of Collision Theory

As stated, a chemical reaction must involve collision of particles with each other

An effective collision is one that has sufficient energy and correct orientation (alignment or positioning) of the colliding particles so that bonds can be broken and new bonds formed.

Ineffective collisions involve particles that rebound from the collisions, essentially unchanged in nature.

Concepts of Collision Theory

The rate of a given reaction depends on the frequency of collisions and the fraction of those collisions that are effective.

Temperature and Rate

