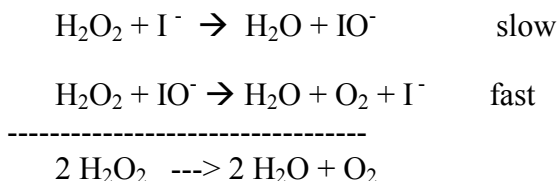


Lecture Notes EE: Kinetic Demo's

1) **Decomposition of H_2O_2 catalyzed by KI**

The reaction mechanism is:



We will add either concentrated KI or 0.1M KI

- a) the rate will be the same for both
- b) the rate will be higher for concentrated KI
- c) the rate will be higher for 0.1M KI

2) **Supermarket rockets**

3% H_2O_2 + yeast + rubbing alcohol (90% isopropanol in water)

3) **Ethanol rockets**

Oxidation of ethanol in oxygen.

Based on the demo, the order of this reaction with respect to oxygen is:

- a) less than 0
- b) 0
- c) greater than 0
- d) can't tell from the demo

4) **Space Shuttle rockets**

Rocket 1: mixture of 2 parts H_2 to 1 part air (by volume)

Rocket 2: mixture of 2 parts H_2 to 1 part oxygen (by volume)

Is there enough oxygen in the first rocket to consume all of the hydrogen?

- a) yes
- b) no

5) Lyco on spoon

Lyco is a powder of club moss spores. The size of the spores is about 30×10^{-6} meters.

When we compare burning lyco on a spoon, with spraying it into a flame:

- a) the burn rate will be much lower in the flame
- b) the burn rate will be the same
- c) the burn rate will be much faster when we blow it into the flame

6) Ostwald reaction

Reaction of NH_3 and O_2 to form NO and H_2O

Based on your observations of the demonstration, is this reaction exothermic or endothermic?

- a) exothermic
- b) endothermic