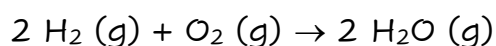


Catalysts

1. Name five factors that will affect the rate of reaction. Provide an example of each.
2. Explain why if a lit match is applied to a lump of coal there is little effect, but if a lit match is applied to coal dust the result is an explosive reaction.
3. The following reaction has a high activation energy, is exothermic, and self-sustaining.



Why is it unlikely the reaction occurs as a single step, and how can the reaction rate be increased?

4. How does a catalyst increase the rate of a reaction?
5. Indicate which of the following are heterogeneous or homogeneous catalysts.
 - a) Rhodium and platinum metals are used in a car's catalytic converter to convert exhaust gases into safer gases.
 - b) Gaseous chlorofluorocarbons (CFCs) have been shown to catalyze the breakdown of ozone in the upper atmosphere.
 - c) Aqueous sulfuric acid will catalyze the decomposition of aqueous formic acid into carbon monoxide and water.
 - d) Powdered TiCl_4 is used in the formation of polyethylene polymer from gaseous ethylene