

## Reaction Rate Homework

- 1) Of each pair of reactions below, circle the that will occur most quickly. Explain your reasoning.
- a)  $2 \text{Na} + 2 \text{H}_2\text{O} \rightarrow 2 \text{NaOH} + \text{H}_2$   
 $2 \text{Cu} + 2 \text{H}_2\text{O} \rightarrow 2 \text{CuOH} + \text{H}_2$
- b)  $2 \text{C}_2\text{H}_2 + 5 \text{O}_2 \rightarrow 4 \text{CO}_2 + 2 \text{H}_2\text{O}$   $H_{\text{combustion}} = - 1305 \text{ kJ}$   
 $\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O}$   $H_{\text{combustion}} = - 882 \text{ kJ}$
- c)  $\text{Fe} + 2 \text{HF} \rightarrow \text{FeF}_2 + \text{H}_2$   
 $\text{Fe} + 2 \text{HF} \rightarrow \text{FeF}_2 + \text{H}_2$
- 2) Explain why wood burns slowly in oxygen but sawdust has been known to explode when heated in oxygen.
- 3) Explain how a catalyst works and give an example of a catalyst that we didn't discuss in class.
- 4) Why is it usually a good idea to store milk in a refrigerator? Explain your answer using what you've learned about chemical reaction rates.