*Do all reactions occur spontaneously? No. They need to have enough energy*

*Kinetics: The study of how reactions occur*

*Activation Energy: the minimum amount of energy needed to start a chemical reaction*

*Heat of Reaction: Energy absorbed(endothermic) or released (exothermic) during a chemical reaction. It is equal to the difference between the potential energy of the products minus the potential energy of the reactants.*



|  |  |
| --- | --- |
| *2 H2(g) + O2(g) 🡪 2 H2O(l) + 571.6 kj* *∆H =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Exothermic or Endothermic?**What if I only wanted to make 1 mole of H2O?**2 H2O(l) + 571.6 kj 🡪 2 H2(g) + O2(g)* *∆H= \_\_\_\_\_\_\_\_\_\_\_\_**Exothermic or Endothermic?**CH4(g) + 2 O2(g) 🡪 CO2(g) 2 H2O(l)*  *Where would heat be added to this equation?**2NH4Cl(s) 🡪 NH4+(aq) + Cl – (aq)**Where would heat be added to this equation?*  | http://www.kentchemistry.com/images/links/Kinetics/enthal1.gif |