**4 Step ∆H neutralization for an Acid or a Base**

The following situations are exothermic:

* Acid dissolving in water
* Base dissolving in water
* Acid and Base reacting
* Fermentation
* Composting
* Digestion
* Combustion

When an acid reacts with a base heat energy is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Using a coffee cup calorimeter, 100.0 mL of a 0.50 M sodium hydroxide solution was added to

neutralize 50.0 mL of a 0.50 M sulfuric acid solution.

The following temperatures were recorded: Ti = 21.5 oC and Tf = 26.0 oC

The BCE for this neutralization reaction is:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

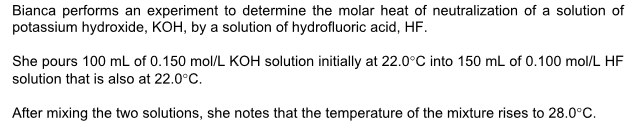
What is the **molar heat of neutralization** for NaOH?

**Sketch!**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

**Calculate ∆H for NaOH: You will be asked for either the Acid or the Base only!!!!!!!!**

**Problem**



**What is the heat of neutralization for the acid in the above reaction?**