Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lab Day & Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_

##  Data Sheet

###  Equilibrium of a Weak Acid, HSO4–

Net ionic equation for this equilibrium, with change in indicator colors:

Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ⇌ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The solution should be more orange if the equilibrium shifts to the \_\_\_\_\_\_\_(left or right).

The solution should be redder if the equilibrium shifts to the \_\_\_\_\_\_\_ (left or right).

Color of the initial solution after adding the indicator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Adding Na2SO4

Color change after adding Na2SO4 solution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Based on the color change, the reaction shifted to the (circle one): left right

Explain the direction of the shift using Le Châtelier’s principle:

#### Adding NaHSO4

Color change after adding NaHSO4 solution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Based on the color change, the reaction shifted to the (circle one): left right

Explain the direction of the shift using Le Châtelier’s principle:

#### Changing the Temperature

Color change on heating: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Color change on cooling: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

On heating, the reaction shifted to the (circle one): left right

Net ionic equation for this equilibrium, with change in indicator colors, and with heat as a reactant or product:

According to the reaction above, this process is (circle one): exothermic endothermic

### Equilibrium of a Slightly Soluble Salt, Mg(OH)2

Chemical reaction for formation of a precipitate on adding NaOH(aq) to MgCl2(aq).

Net ionic equation for the Mg(OH)2 equilibrium.

#### Adding HCl

Change on adding conc. HCl to a mixture containing Mg(OH)2(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dissolved component of the equilibrium reaction whose concentration is most directly changed by adding HCl to the mixture: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Direction the reaction shifted on adding HCl (circle one): left right

Explain the direction of the shift using Le Châtelier’s principle:

#### Adding Na4EDTA

Change on adding Na4EDTA solution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Component of the equilibrium reaction whose concentration is directly changed by adding Na4EDTA to the mixture: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Direction the reaction shifted on adding Na4EDTA (circle one): left right

Explain the direction of the shift using Le Châtelier’s principle:

#### Changing the Temperature

Color of indicator in the room temperature solution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Color change on heating: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Color change on cooling: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

On heating, the reaction shifted to the (circle one): left right

Net ionic equation for this equilibrium, with change in indicator colors, and with heat as a reactant or product:

According to the reaction above, this process is (circle one): exothermic endothermic