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22.0.H Question Bank Chemical Reactions and Heat

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Question Bank April 14 Chemical Reactions and Heat

Gathered from Recorder Reports and listed for each group's experiment.

General Questions:

- What determines if a reaction is exothermic or endothermic?
- How much of an effect does the type of container affect the heat increase?
- Why some materials/substances more important to certain reactions than other materials/substances?

Group 1 Jon Cale' Charles vinegar (solution) and baking soda (solid)

1.1 XXX
1.2 What is the difference between adding more solid or liquid. What are the different results?
1.3 What would happen if you trapped the heat?
1.4 Besides visual observations, how are you sure the reaction speed increased?
1.5
1.6 If enough of each substance was added, would it all turn to the gas phase?
1.7 Is the gas carrying heat our or is the heat stored in chemical bonds?

Group 2 Eliza Marisa Mandy calcium chloride (s), baking soda (solution)

2.1 For ours, the OPPOSITE happened → more baking soda made for lower temp. Why?
2.2 XXX
2.3 What practical application does this have?
2.4
2.5
2.6 Why was there condensation? Why did more appear when more baking soda was added?
2.7 What differences between baking soda and vinegar cause the chemical reaction they saw?

Group 3 Heather Samantha (Emily) steel wool (wet)

3.1 Is parafilm a bad conductor? Why didn't oxidation occur with small amount of vinegar?
3.2 Why does vinegar strip away steel wool's coating? What are the reactants involved causing a production of heat? How is heat transferred in the reaction?
3.3 If oxygen is being added, how?
3.4 What causes the reaction between vinegar and steel wool?
3.5 Why was it important to keep the flask sealed in the steel wool experiment?
3.6 What was occurring that caused the steel wool to change color?
3.7 What was the coating on the steel that the vinegar removed?

Christopher F. Bauer, Principal Investigator.
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Group 4 Nicholas Becky Kaleigh ammonium chloride (s) and water

4.1

4.2

4.3 What if the amount of ammonium chloride was kept constant?

4.4 Does the state of the substance make a difference (solid vs liquid)?

4.5

4.6 How did the water molecules cause the ammonium chloride molecules to speed up? Conduction?

4.7 How did you observe changes in density?

Group 5 Miriam Emily D Amanda batteries shorted with a copper wire

5.1 So, is using batteries dangerous?

5.2 What created the heat in the battery reaction?

5.3 What if a larger sized battery was used instead of more batteries?

5.4 What evidence do you have of the chemical reaction?

5.5 What is the make-up of a battery that causes a chemical reaction to occur?

5.6 Why did the battery physically change? What caused the coating to peel off? What keeps electrons from flowing across the battery on the inside?

5.7 How did they measure the temperature in the wires?

Group 6 Jake Tim Taylor baking soda (s) and hydrogen peroxide (solutn)

6.1 Why did it get SO cold? (negative degrees C)?

6.2 Why did the different amounts of reactants not change the results of the reactions?

6.3 Why did the second reaction not work?

6.4 What do you think contributed to the baking soda results not showing as hypothesized?

6.5 Does the fact that the baking soda is a solid and hydrogen peroxide a liquid affect the experiment?

6.6 XXX

6.7 Which is more endothermic (showed greater change), vinegar or peroxide?

Group 7 Sean Emma Kyle barium hydroxide (s) and ammonium nitrate (s)

7.1 Did they dissolve into a liquid or did the reaction create a liquid?

7.2 If these were both solids (poweder), how were they able to react so greatly?

7.3 Why was the 2:2 ratio so much more drastic?

7.4 What is it that causes the decrease in temperature since they mixed two solids?

7.5 Would the temperature difference continue as you used more ammonium nitrate and carium hydroxide?

7.6 If even more of each substance was added, could you eventually see water freeze underneath as a result?

7.7 XXX

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