

Change in temperature—Exothermic reaction

Can the temperature increase during a chemical reaction?

Conduct the following procedure as written and record the change in temperature in the chart below. Then adjust either the amount of baking soda solution or calcium chloride to try to reach a target temperature.

Procedure

1. Use a graduated cylinder to measure 10 ml of baking soda solution and pour it into a clear plastic cup.
2. Place a thermometer in the baking soda solution. Read the thermometer and record the temperature in the chart next to the words “Initial temperature”.
3. While the thermometer is in the cup, add $\frac{1}{2}$ teaspoon of calcium chloride.
4. Watch the thermometer to observe any change in temperature. Record the highest temperature in the chart.
5. After conducting the activity according to the procedure, add another $5\text{ }^{\circ}\text{C}$ or about $10\text{ }^{\circ}\text{F}$ to the highest temperature. This is your *target temperature*. Write this target temperature in your chart for each of the 3 trials.
6. Try changing the amount of baking soda solution or calcium chloride to reach your target temperature



Trials	Procedure written above	1st trial	2nd trial	3rd trial
Baking soda solution	10 ml			
Initial temperature				
Calcium chloride	$\frac{1}{2}$ teaspoon			
Highest temperature				
Target temperature				
Difference between the highest and target temperatures				
Is this too high, too low, or just right?				

When the temperature increases during a chemical reaction, it's called an *exothermic* reaction.