

Chemistry

Zippie Chemistry 3: Endothermic / Exothermic

Background

When atoms / ions rearrange, energy is transferred. When energy is transferred to the surroundings by a reaction, it is exothermic. Self-heating cans of food or drink often use the exothermic reaction of calcium oxide and water to heat their contents.

Safety

- ✓ Goggles
- ✓ Disposable gloves

You will need...

- ✓ Ziploc bags (1L or 3L)
- ✓ water
- ✓ magnesium sulfate or calcium chloride
- ✓ condiment cup
- ✓ (thermometer)

Follow these steps

1. Put 5 g of magnesium sulfate (or calcium chloride) in the bag
2. Put 5 cm³ of water in the plastic cup.
3. Place the cup in the bag, expel excess air and seal the bag without spilling the water.
4. Mix reactants by shaking and observe.
5. Is there a noticeable change in temperature?

So what happened?

The solvation of magnesium sulfate is endothermic while that of calcium chloride is exothermic.

What next?

1. Research the meaning of solvation energy.
2. Describe how you would use a temperature sensor to measure the change in temperature.

