

Hot and Cold Packs

Endothermic and exothermic enthalpies of solution

Chemicals and Equipment Needed

- d-H₂O
- CaCl₂ – **E3**
- NH₄NO₃ – **E2**
- Plastic bags (tall ziplock) – **U4**
- several 100 mL beakers – **Q3**

Preparation

- **NOTE** - make 2 of each pack for EL 1008 and MP 1015, make 3 for MP 1000. For other classrooms, consult the professor.
 - It's best to make several packs at once and store them in the box on **O2** (or above **O**)
- Measure out 40g CaCl₂ into plastic bags for the hot packs, and 40g NH₄NO₃ for the cold packs. Label the bags with the compound and whether it's hot or cold.
 - Nest the bag inside another, empty plastic bag, making sure the opening is easily accessible.
- For each bag, provide a 100 mL beaker with 40 mL d-H₂O
 - Provide labeled plastic petri dish as a lid.

Presentation

- Pour the water into the inner bag, seal and shove into the outer bag, and seal that one. Pass around while you discuss endothermic and exothermic reactions

Clean-Up

- Try to save the outside bag if it didn't get wet. Dump the contents of the inside bag down the sink with plenty of water, rinse the inner bag and throw in trash