

Good Morning

- Please take a handout from the front desk and begin reading over it.
- This is a (p)review for the lab today.
- Get goggles (googles) for you and your partner.
- Check your homework from last night.

Quizzes

- Quizzes are on IC. I will distribute them when everyone has taken them.
- Please let me know if you have any questions.

Today

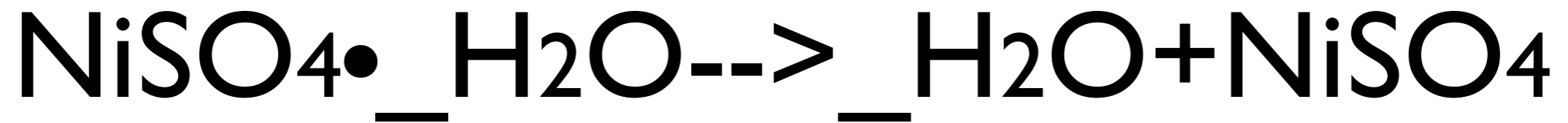
- Determining the empirical formula of a hydrate compound.
- Hydrate lab.

Hydrate Compounds

- An ionic compound with water molecules bonded to it.
- The compound looks “dry,” but there is water present.
- We can evaporate the water and determine the original compound.

Example: On Handout

- Nickel(II)Sulfate is a hydrate compound.
- 20g of the compound is dehydrated (heated) and the remaining compound weighs 10.37g.
- What is the empirical formula?



- This is a decomposition reaction.
- The dot is a multiplier. For every one NiSO_4 , there are a certain number of water molecules.
- We need to figure out how many.

Steps 1 & 2

- Find the mass of the hydrate and the mass of the dehydrate (anhydrous) compound.
- What left was the water.
- $20\text{g} - 10.37\text{g} = 9.63\text{g H}_2\text{O}$.
- Convert mass of water to moles:
 $9.63\text{g} / 18.02\text{g} = 0.5344$ moles of H_2O .

Steps 4 & 5

- Convert the mass of anhydrous salt to moles.
- $10.37\text{g}/154.76\text{g}=0.0670$ mol NiSO₄.
- Determine the ratio of moles of water to anhydrous salt.
- $0.5344/0.067=7.976$ or about 8.

Determine the Formula

- For every NiSO_4 there are $8\text{H}_2\text{O}$.
- That means that the formula for the hydrate compound is:
 - $\text{NiSO}_4 \cdot 8\text{H}_2\text{O}$.
 - This is called nickel(II)sulfate octahydrate (octa- for 8)

You Try

- There is a sample on the bottom half of the paper.
- You and your partner determine the formula for the hydrate.
- We will go over it in a moment.

Today's Lab

- You will determine the composition of a hydrate compound.
- Please look to the front for a demo of the procedure.

Getting Started

- You and your partner complete the two problems on the back of the sheet.
- After you have shown me your work, get a lab sheet and do the front portion of the page.
- You may then move onto the procedure.

Clean Up

- Put all materials back where you found them.
- Wipe your lab table down with a damp sponge.
- Time permitting: start the homework.