



**GRAVIMETRIC DETERMINATION OF  
THE WATER OF HYDRATION OF  
EPSOM SALT**

Name \_\_\_\_\_

Instructor \_\_\_\_\_

Lab Section \_\_\_\_\_

Date \_\_\_\_\_

3. A sample of pure oxalic acid hydrate was obtained by extracting a plant called Snake Tongue. A 3.000 g sample of the material is heated carefully in a vacuum oven until no more mass was lost from the sample. After heating, the final weight of the material was 2.143 g. What is the formula of the oxalic acid hydrate,  $(\text{COOH})_2 \cdot X \text{H}_2\text{O}$ ? (mol.wt.  $(\text{COOH})_2 = 90.0$ )
4. An ore sample is known to contain copper sulfate pentahydrate,  $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$ . If a 10.000 g sample of the ore loses 0.536 g of water when heated strongly, what is the maximum quantity of  $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$  that could be in the sample? (fwt.  $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O} = 249.55$ )

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**In-Lab Guidelines** (This is a **guide** to allow you to **prepare** your Laboratory Notebook so that you can efficiently collect and record the data needed for each part of this experiment. Provide a space for observations of events, etc. that might affect your data. Record your data the Laboratory Notebook. Turn in the duplicate pages of your observations to your Instructor before you leave the laboratory period.)

	Trial 1	Trial 2
<b>Mass of beaker</b>	_____ g	_____ g
<b>Mass of beaker and Epsom salt sample</b>	_____ g	_____ g
<b>Mass of beaker and salt <i>after</i> heating</b>	_____ g	_____ g
<b>Mass lost during heating</b>	_____ g	_____ g
<b>Mass of residue remaining in beaker</b>	_____ g	_____ g
<b>Initial mass of Epsom salt used</b>	_____ g	_____ g

Observations: (anything you observed, condensation, steam, smoke, spilled compound, etc.)

Experimental Error: (did anything happen or not happen that might alter your results, if so, what?)

EXPERIMENT #3

**GRAVIMETRIC DETERMINATION OF  
THE WATER OF HYDRATION OF  
EPSOM SALT**

Name \_\_\_\_\_

Instructor \_\_\_\_\_

Lab Section \_\_\_\_\_

Date \_\_\_\_\_

SAMPLE

**GRAVIMETRIC DETERMINATION OF  
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Name \_\_\_\_\_

Instructor \_\_\_\_\_

Lab Section \_\_\_\_\_

Date \_\_\_\_\_

**Post-Lab Report** (Use the In-lab observations to complete the laboratory report. Turn in to your Instructor when you have completed the report.)

	<b>Trial 1</b>	<b>Trial 2</b>
<b>Mass of Epsom salt used</b>	_____ g	_____ g
<b>Mass of Residue after heating</b>	_____ g	_____ g
<b>Moles of MgSO<sub>4</sub></b>	_____ mol	_____ mol
<b>Mass of H<sub>2</sub>O lost</b>	_____ g	_____ g
<b>Moles of H<sub>2</sub>O lost</b>	_____ mol	_____ mol
<b>Ratio of moles of H<sub>2</sub>O to moles of MgSO<sub>4</sub></b>	_____	_____
<b>Average number of moles of H<sub>2</sub>O present in Epsom salt sample</b>	_____ mol	
<b>Chemical Formula for Your Epsom Salt</b>	_____	

**Show how you calculated moles of water *and* moles of anhydrous MgSO<sub>4</sub> for each trial**

**Experimental Error (what errors may have occurred during the performance of this experiment and altered your results)**





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Instructor \_\_\_\_\_

Lab Section \_\_\_\_\_

Date \_\_\_\_\_