

Bell Ringer #35:

Socratic Room Name:
LEVEL70WARRIOR

Percent Composition

<http://drmoad.weebly.com/>

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Agenda

Bell Ringer
Finish Hydrate Lab
Chemical Naming Review
Percent Composition Notes
Percent Composition Video
Practice Problems
Exit Ticket

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Crucible data table

mass of empty crucible	
mass of crucible and $\text{CuSO}_4 \cdot ?\text{H}_2\text{O}$	
mass after 1st heating	
mass after 2nd heating	
mass after 3rd heating, if needed	
mass after final heating	

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1. Find the exact mass of the hydrated copper (II) sulfate, $\text{CuSO}_4 \cdot ?\text{H}_2\text{O}$, using only numbers in the data table above.

$$\text{Line 1} = \text{empty crucible} = 12.5678 \text{ g}$$

$$\text{Line 2} = \text{crucible} + \text{hydrate} = 17.5554 \text{ g}$$

$$\text{Line 2} - \text{Line 1} = \text{Mass of hydrated copper (II) sulfate}$$

$$17.5554 \text{ g} - 12.5678 \text{ g} = 4.9876 \text{ g of hydrate}$$

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2. Find the mass of the water evaporated from the hydrate.

$$4.9876 \text{ g} = \text{mass of hydrate}$$

$$3.1883 \text{ g} = \text{final mass of anhydrate}$$

$$4.9876 \text{ g} - 3.1883 \text{ g} = 1.7993 \text{ g of water}$$

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3. Find the mass of the anhydrous (dry) copper (II) sulfate, CuSO_4 .

Final mass:

$$3.1883 \text{ g} = \text{anhydrous } \text{CuSO}_4$$

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4. Convert the mass of anhydrous (dry) copper (II) sulfate, CuSO_4 , to moles.

$$\frac{3.1883\text{g}}{1} \times \frac{\text{mol}}{159.609\text{g}} = 0.01997557\text{mol}$$

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5. Convert the mass of water to moles.

$$\frac{1.7993\text{g}}{1} \times \frac{\text{mol}}{18.01528\text{g}} = 0.09987785\text{mol}$$

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6. Find the ratio of moles of CuSO_4 to moles of H_2O .

_____ : _____

 CuSO_4 : water
0.01997557 mol : 0.09987785 mol

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7. Express the ratio from calculation #6 in its simplest, whole number ratio. ____ : ____

$$\frac{0.01997557}{0.01997557} = 1$$

$$\frac{0.09987785}{0.01997557} = 5$$

CuSO_4 : water
1 : 5

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8. Write the complete formula for copper (II) sulfate hydrate.

_____ . _____

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Quiz: Chemical Naming Quiz

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Directions for finding Percent Composition

1. Find the total molecular mass
2. Divide the element mass by the total mass and multiply by 100.

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Find the percent of Iron in Iron (II) oxide.

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Find the percent of carbon in carbon dioxide.

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Find the percent of Magnesium in Magnesium Bromide.

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Percent composition video

<https://www.youtube.com/watch?v=lywmGCfUIA>

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Exit Ticket #34:

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