FLINN SCIENTIFIC

Name_____

Sample Data

Part 1. Data Table

	Trial #1	Trial #2
Measured melting point	°C	°C
Literature melting point	°C	°C

Part 2. Data Table

Mass of crucible and cover	g
Mass of crucible, cover, and alum crystals	g
Mass of alum crystals	g
Mass of crucible, cover, and alum after heating #1	g
Mass of crucible, cover, and alum after heating #2	g
Mass of water driven off	g
Mass of anhydrous alum, $AlK(SO_4)_2$	g
Moles H_2O	
Moles $AlK(SO_4)_2$	
Mole ratio; moles H_2O/moles $AlK(SO_4)_2$	

Part 3. Data Table

Mass of alum	g
Mass of filter paper + $BaSO_4$	g
Mass of filter paper + $BaSO_4$ (2nd weighing)	g
Mass of filter paper	g
Mass of $BaSO_4$	g
Mass of sulfate in the precipitate	g
Experimental % sulfate in alum	%
Theoretical % sulfate in alum	%
Percent error	%
Mole ratio; moles H_2O/moles $AlK(SO_4)_2$	

Calculations and Analysis

Part 1

Find the literature value for the melting point of aluminum potassium sulfate and enter this value in the Part 1 Data Table.

Part 2

1. From the mass of anhydrous alum remaining in the crucible after heating and its formula, $AlK(SO_4)_2$, calculate the moles of anhydrous alum in the original sample. Enter this value in the Part 2 Data Table.
2. From the mass of water driven off from the sample and the molar mass of water, calculate the moles of water in the original sample. Enter this value in the Part 2 Data Table.
3. Calculate the mole ratio of water to anhydrous alum in the sample. Record this value in the Part 2 Data Table.

Part 3

1. Calculate the percent sulfate in barium sulfate.
2. Calculate the mass of sulfate in the precipitated barium sulfate. Record this value in the Part 3 Data Table.
3. Calculate the percent sulfate in the alum sample. Record this value in the Part 3 Data Table.
4. Calculate the theoretical percent sulfate in alum, $AlK(SO_4)_2 \cdot H_2O$. Record this value in the Part 3 Data Table.
5. Calculate the percent error in the determination of sulfate ion in alum.

Post-Lab Questions *(Use a separate sheet of paper to answer the following questions.)*

1. Why must objects be cooled before their mass is determined on a sensitive balance?
2. Comment on the results of the different tests used to verify that the sample tested was alum.
3. What other tests could be used to verify the composition of alum?