

# Analysis of Ag Feedback Rubric

Sections	Descriptions	Self-Assessment
<b>Title</b>	<ul style="list-style-type: none"> <li>• Descriptive</li> <li>• Include the reaction(s) as formula or words</li> <li>• Does not include the words “quantitative” or “qualitative”</li> </ul>	
<b>Data Table</b>	<ul style="list-style-type: none"> <li>• All quantitative data presented at numbers</li> <li>• Units must be included with number or stated in row</li> </ul>	
<b>Discussion Questions</b>	<ul style="list-style-type: none"> <li>• All answered</li> <li>• All questions rephrased as part of the question</li> <li>• Significant detail to support the answers</li> </ul>	
<b>Calculations</b>	<ul style="list-style-type: none"> <li>• Calculation of mass of NaCl needed for precipitation</li> <li>• Calculation of mass of NaCl used (x2) for precipitation</li> <li>• Calculation of mass of Ag from measured AgCl stoichiometrically</li> <li>• Calculation of percent Ag in measured mass of AgCl</li> <li>• Calculation of percent Ag in original alloy bead. Must use initial mass of bead</li> <li>• Calculation of Percent error on the calculated percent Ag in Alloy (92% is accepted value)</li> <li>• All calculations neat, clear, ez to follow, and set up correctly</li> </ul>	

**Discussion Questions** – The highlighted ones were graded.

All were graded for completion, detail, thought AND accuracy

Number 1 and 6

All were graded for completion, detail, and thought

1. A two-fold excess of NaCl was used to set up the reaction to cause all Silver ion ( $\text{Ag}^+$ ) to precipitate out at AgCl. Since the experiment was focusing on the amount or percent Ag in an alloy, setting up the reaction to best remove all Silver Ion from solution is a necessity to hold the purpose of the experiment true.
2. Since we are using a two-fold excess NaCl, the use of a sensitive balance is not necessary as the amount used for the experiment is so much, knowing down to the 1000<sup>th</sup> place does not make a difference to what you are trying to accomplish
3. Washing, rinsing the precipitate is necessary to remove any contaminants that could add mass to your final sample of AgCl, which would increase your percent Ag downstream in the calculation
4. The nitric acid wash will not interfere with the weight of the Ag as part of AgCl. AgCl is not soluble.  $\text{Ag}^+$  in AgCl is an ionic compound, Nitric acid cannot ionize  $\text{Ag}^+$  to  $\text{Ag}^{2+}$ . AgCl is not affected by the wash and therefore amount of Ag is not affected.

5. We did not use a crucible for our experiment. However, if we did, a hot crucible would cause the mass to be lower than expected, which would cause the percent Ag in the alloy to be calculated less than expected. Due to convection currents from hot objects, which can affect the apparent mass read on the balance
6. Nitric acid is an oxidizer and can remove electrons from elements. However, hydrochloric acid is not an oxidizer and cannot remove electrons from elements. Silver is higher on the activity series than Hydrogen (of HCl) for single replacement reactions and cannot react with Silver, therefore no reaction can occur.
7. Lower. Misreading the balance to be higher than it really is, meaning the actual mass of alloy is smaller, leading to all calculations being lower than expected. In the final calculation of Mass of Ag divided by mass of alloy would have a large difference and therefore a lower percent Silver.