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**POST-LAB REPORT #1**

**A Colorimetric Determination of Aspirin**

1. *Using your data show the calculation of the concentration of acetylsalicylic (ASA) in Solution S.*

Mass of acetylsalicylic acid in Solution S = **1.6023 g**

Volume of Solution S = **1.00 L**

Concentration of acetylsalicylic acid in Solution S = =

= = 0.008893761 M = **0.00889 M**

1. *Using your data show the calculation of the concentration of the iron tetraaquasalicylato ion, [Fe(SA in Solution 1.*

Volume of Solution S: = = **2.00 mL**

Concentration of acetylsalicylic acid in Solution S = = **0.00889 M**

Volume of Solution 1: = = **50.00 mL**

0.0003556 M = **0.000356 M**

1. *Include your Excel graph of the Beer’s Law plot with this document. The trendline and its equation must be displayed. Be sure the equation of the trendline has 6 significant digits for the slope and intercept (by using “format trendline”).*
2. *Using your data show the calculation of the concentration of the acetylsalicylic acid solution in the 50.00 mL sample (part B of experiment).*

Equation of straight line: **y = 590.542x – 0.0146429**

Absorbance of aspirin solution = **0.109**

[Fe-] in 50.00 mL sample = = = 0.000209372 M = **0.000209 M**

1. *Using your data show the calculation of the concentration of the acetylsalicylic acid solution in the 250 mL volumetric flask containing the dissolved aspirin.*

Volume of Solution S: = = **2.00 mL**

[Fe-] in 50.00 mL sample = = **0.000209 M**

Volume of sample = = **50.00 mL**

= 0.005225 M = **0.00523 M**

1. *Using your data show the calculation of the mass (in mg) of acetylsalicylic acid in the tablet.*

Moles of acetylsalicylic acid in aspirin tablet = [Fe-] x Volume = 0.00523 M x 250 mL x

= 0.0013075 mol = **0.00131 mol**

Mass of acetylsalicylic acid in aspirin tablet = moles [Fe-] x

= 0.00131 mol x 180.16 g/mol x = 236.0096 mg = **236 mg**

1. *List three possible experimental errors that may have caused deviation of your answer to 6 from the accepted value. For each error, indicate whether you expect the error would cause your calculated value of the mass to be larger or smaller than the correct value.*

% error = x 100 = x 100 = 27.38% = **27%**

Variation/inconsistencies in meniscus level – Minor changes to the reading of the absorbance, depending on how far/close to 50.00mL exactly the absorbance can be influenced in both the positive and negative direction (leading to higher and lower value than expected respectively).

Not getting all of solution out of pipets – Pipets always keep a little bit of solution in the tip, therefore volume of measured solution may not be exactly 50.00mL, resulting in a lower value than the correct one.

Not completely diluting a solution – This will cause the calorimeter to produce an inaccurate reading, which is lower than the actual value.