**Chromium Nitrate Unknown:**

**Synopsis:**

 You have been given a chromium nitrate solution of unknown concentration. (The molarity is 0.020M < x < 0.10 M.) Your task is to determine the molarity of the solution. Be aware that chromium nitrate is a hydrated molecule; check the label.

**Technique/Principles Used: (What you did, why you did this, why it should work.)**

**Chemical Reactions (if any):**

**Procedure: (Step-by-step numbered list that someone could follow to replicate your experiment.)**

**Data: (Charts of observations and measurements taken.)**

**Result:**

 **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ M**

**Justification of result: (Include pertinent graphs, charts, diagrams, and explain how the result was achieved, why we should believe it citing principles, laws, theories, and using actual data.)**

**The “Since We’re Running Out of Time” Lab Sheet**

**Name:**

**To determine the concentration of the unknown chromium nitrate solution:**

1. **Make 50.0 mls of a 0.10 M chromium nitrate solution from the solid. The molecule is a hydrate so the molecular weight is 400 g/mol.**

**\_\_\_\_\_\_\_\_\_\_ grams of Cr(NO3)3**

1. **Make 50.0 mls of 0.070 M solution by diluting some of the 0.10 M solution.**

**\_\_\_\_\_\_\_\_\_ mls of 0.10 M diluted to 50.0 mls**

1. **Make 50.0 mls of 0.040 M solution by diluting some of the 0.070 M solution.**

**\_\_\_\_\_\_\_\_\_ mls of 0.070 M diluted to 50.0 mls**

1. **Make 50.0 mls 0.015 M solution by diluting some of the 0.040 M solution.**

**\_\_\_\_\_\_\_\_ mls of 0.040 M diluted ot 50.0 mls**

1. **Now, determine the absorbances for each solution INCLUDING the unknown by setting the Spec 20 to 400 nm, zeroing it, 100%ing it and testing each solution.**

**Concentration % Transmittance Absorbance**

 **0.10 M \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_**

 **0.070 M \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_**

 **0.040 M \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_**

 **0.015 M \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_**

 **Unknown \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_**