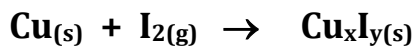# AP Chemistry
Empirical Formula Lab

Purpose: To determine the empirical formula of the copper iodide compound produced by direct synthesis from its elements.

The reaction is: $Cu_{(s)} + I_{2(g)} \rightarrow Cu_xI_{y(s)}$

Procedure:

Clean both sides of a copper strip using a piece of steel wool until a shiny surface is obtained. Place the strip in a beaker of 1 M HCl for a minute and then rinse it in tap water. Dry the strip with a paper towel. Dip the copper strip in a beaker of acetone and shake dry. When handling the strip, hold it by its edges so as to avoid leaving your fingerprints on the surface. Weigh the copper strip on the analytical balance in the backroom and record its weight to the nearest 0.0001 g.

Using a paperclip as a hook, suspend the copper strip from a glass stirring rod and place the assembly in a one liter flask. Add a **small** spatula of I_2 solid to the flask and place it on a hot plate found under the fume hood. Let the copper strip react with the purple iodine vapor for about two minutes. You should observe the growth yellowish-white crystals on the surface of the strip. Remove the copper strip and weigh it the analytical balance.

Now using a pair of tongs rinse the copper strip in a solution of sodium thiosulfate , $Na_2S_2O_3$. You may need to shake the strip gently so as to remove the copper iodide crystals. Rinse the clean copper strip in tap water and dry it using a paper towel. Dip the copper strip in a beaker of acetone and shake dry. Record the exact weight of the copper strip.

Run the above reaction as often as time permits. Obtain additional data from other groups to fill the table.

Data

Trial	Mass of Cu strip before the reaction (g)	Mass of copper strip + copper iodide (g)	Mass of iodine on strip (g)	Mass of Cu strip after rinsing (g)	Mass of copper that reacted (g)
1					
2					
3					
4					
5					
6					
7					

Calculations - Using your data, determine the empirical formula of copper iodide.

Lab report details will be forthcoming.