

Name \_\_\_\_\_

Section \_\_\_\_\_

Desk# \_\_\_\_\_

Date \_\_\_\_\_

Lab Partner's Name \_\_\_\_\_

### STOI 386: Determining the Empirical Formula of Copper Chloride

**Recorded Data:** (All data should be recorded in pen.)

density  $Cu_xCl_y$  soln (g/ml) \_\_\_\_\_

concentration  $Cu_xCl_y$  soln (g/ml) \_\_\_\_\_

	Run #1	Run #2
Mass of empty evaporating dish or casserole, g	_____	_____
Mass of ~25ml $Cu_xCl_y$ soln, g	_____	_____
*Volume of ~25 ml $Cu_xCl_y$ soln, ml ( $V = m / d$ )	_____	_____
*Mass of actual $Cu_xCl_y$ in ~25 ml soln, g ( $m_{Actual} = V \times conc.$ )	_____	_____

**Repeat heating, cooling, and weighing procedure five times or until two successive weighings are within 10mg.**

Mass of evaporating dish + Cu	1 <sup>st</sup> heating, g	_____	_____
	2 <sup>nd</sup> heating, g	_____	_____
	3 <sup>rd</sup> heating, g	_____	_____
	4 <sup>th</sup> heating, g	_____	_____
	5 <sup>th</sup> heating, g	_____	_____

#### **Calculations (Using equations in lab manual p61.):**

\*(Eqn #1) Mass of Cu produced, g \_\_\_\_\_

\*(Eqn #3) Percent Cu in copper chloride, % \_\_\_\_\_

\*(Eqn #4) Mean Percent Cu in copper chloride, % \_\_\_\_\_

\*(Eqn #5) Mass of Cl in copper chloride, g \_\_\_\_\_

\*(Eqn #6) Percent Cl in copper chloride, % \_\_\_\_\_

(Eqn #7) Mean Percent Cl in copper chloride, % \_\_\_\_\_

Empirical Formula of Copper Chloride (Corresponding to Table 2) \_\_\_\_\_

**Table 2 (p. 61 #8):** Percent composition data for several possible compounds of Cu and Cl.

Compound	Formula Mass	%Cu	%Cl
CuCl	_____ g/mol	_____	_____
Cu <sub>2</sub> Cl	_____ g/mol	_____	_____
CuCl <sub>2</sub>	_____ g/mol	_____	_____
Cu <sub>2</sub> Cl <sub>3</sub>	_____ g/mol	_____	_____
Cu <sub>3</sub> Cl <sub>2</sub>	_____ g/mol	_____	_____

#### **Turn-in to be graded:**

1. This Data and Results Sheet & Pre-Laboratory Assignment Questions pp. 67-68 (as a post lab exercise).
2. Sample Calculations for equations labeled with an asterisk, \*. Calculations may be completed for Run #1 only, except for the mean percent of copper in the copper chloride which will incorporate both Run #1 & Run #2.