

## CHEMISTRY I “INSTRUCTIONLESS LAB”

### WHAT TO TURN IN:

PURPOSE

specific PROCEDURE for 8 parts marked with \* (7 on front, 1 on back)

DATA TABLE

CALCULATIONS section for 8 parts marked with \* (7 on front, 1 on back)

CONCLUSION

QUESTIONS #1-11

### DIRECTIONS

*For the activities below, you need to develop the following:*

- *PURPOSE (“To...”)*
- *specific PROCEDURE for parts marked with \**
- *DATA TABLE*
- *CONCLUSION*

*Show all calculations, watching the sig. figs and units. Label everything clearly.*

*Answer the questions at the end of the lab.*

*This is an “instructionless” lab, so some questions you ask the teacher may be deemed unanswerable. Work with your group to come up with solutions. Think!*

### PROCEDURE

**PART 1: OBTAIN A PIECE OF ALUMINUM FOIL (Al).**

- 1) Determine the number of moles of aluminum in your piece. \*
- 2) Determine the number of atoms of aluminum in your piece. \*
- 3) Rip the piece of foil into two parts.
  - a) Determine the number of moles in each piece. \*
  - b) Determine the number of atoms in each piece. \*

**PART 2: OBTAIN A PIECE OF CHALK (CaCO<sub>3</sub>).**

- 1) Determine the number of moles in your piece of chalk. \*
- 2) Determine the number of particles in your piece of chalk. \*  
Remember to specify which type of representative particle it is.
- 3) Using your piece of chalk, write your name and your lab partner’s names on a piece of scrap paper (or on the board, if there is a chalkboard).  
Be sure to clean off your markings if you are writing on the board.
- 4) Determine the number of particles you left on the paper or board. \*  
Remember to specify which type of representative particle it is.

**QUESTIONS** on the back →

## QUESTIONS

- 1) List the four types of representative particles and give an example (chemical symbols) of each.
- 2) a) All binary ionic (“BI”) and ternary ionic (“TI”) compounds are always considered to be which type of representative particle?  
b) Why?
- 3) Why didn’t you solve for “molecules” of aluminum?
- 4) Explain why a mole of atoms and a mole of molecules is the same quantity.
- 5) How are atomic masses related to moles?
- 6) Why were balances needed for this lab?
- 7) How many particles are in one mole?
- 8) SEE “PART 1” OF THE PROCEDURE, step 3a.
  - a) Add the numbers of moles of the two pieces to get a total. \*
  - b) Was your answer greater, less, or the same as the original sheet, calculated in step 1 of the PROCEDURE?
  - c) Justify your total that you calculated in *part a* of this question.
- 9) a) Describe the sig.fig rule for addition and subtraction.  
b) Give an example calculation not already used in this lab.  
c) When was this rule used in this lab?
- 10) a) Describe the sig.fig rule for multiplication and division.  
b) Give an example calculation not already used in this lab.  
c) When was this rule used in this lab?
- 11) (*opinion question*) What part of this lab was the hardest for you to figure out?