

CHEMISTRY “INSTRUCTIONLESS” MOLE LAB

WHAT TO TURN IN:

Purpose
Hypothesis
Specific Procedure for 8 parts marked with * (7 on front, 1 on back)
Data Table
Calculations for 8 parts marked with * (7 on front, 1 on back)
Error Analysis
Conclusion
Questions #1-9

This is an “instructionless” lab. You have all the materials you need, and you know what is being asked. What you have to figure out is how to do it.

For the lab, in addition to our usual format, you need to develop the following:

- Write your own *PROCEDURE* for parts marked with *
- Create your own data table

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

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 (CaCO₃).

- 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) Explain why your total was greater, less or the same.
- 9) What part of this lab was the hardest for you to figure out?