

## Mole #2 and #3 Podcasts: Conversions (one step) & Molar Mass; SC2c



**Directions:** Find the molar mass of the following compounds (Podcast Mole #2): Show work and include units.

1.  $W_3(PO_3)_5$
2.  $Fe(C_2H_3O_2)_2$
3. Copper I Sulfide
4. Copper II Sulfite

**Directions:** Answer the following questions using the method shown in Podcast Mole #3. Set-up all problems using the factor-label method of dimensional analysis and show all your work and units.

5. How many atoms are in 1.5 moles of neon?
6. How many moles of  $SF_6$  are there in 4,595,000,000,000,000 molecules of  $SF_6$ ?
7. Calculate the number of moles in  $5.45 \times 10^{25}$  atoms of Zn
8. What is the mass of 7.50 moles of sulfur dioxide ( $SO_2$ )?
9. How many moles are there in 250.0 grams of sodium phosphate ( $Na_3PO_4$ )?
10. How many grams of potassium sulfate ( $K_2SO_4$ ) are there in 25.3 moles?
11. Calculate the number of grams in 3.25-mol of  $AgNO_3$
12. What is the volume of 0.38 moles of any gas at STP?
13. Calculate the number of moles in 32.2-L of  $NH_3$
14. What is the mass of 51 liters of oxygen gas?

**Mole #5 Podcast: Percentage Composition; SC2c** (show work and include units)



Mole #5

1. Calculate the % composition of  $\text{Li}_2\text{O}$ .
2. What is the percentage composition of a carbon-oxygen compound, given that a 95.2 g sample of the compound contains 40.8 g of carbon and 54.4 g of oxygen?
3. What is the percentage composition of  $\text{N}_2\text{O}_4$ ?
4. What is the percentage composition of a compound made from 28 grams of nitrogen and 32 grams of oxygen?
5. What is the percentage composition of a carbon-hydrogen-fluorine compound which contains 7.2 grams of carbon, 11.4 grams of fluorine, and 1.8 grams of hydrogen?
6. Find the percentage composition of  $\text{Na}_2\text{SO}_4$ ?
7. If a compound is formed from 60.0 liters of nitrogen gas,  $\text{N}_2$ , (at STP) and 180 liters of hydrogen gas,  $\text{H}_2$ , (at STP), what is its percentage composition?
8. Find the percentage composition of a compound formed when 0.4 moles of potassium are reacted with 8.96 liters of  $\text{O}_2$  gas and  $2.41 \times 10^{22}$  atoms of S.