

Problem Set - Concentrations #3 - Questions

Major Steps in Determining The Concentration of the Indicated Product.

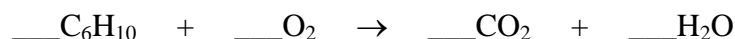
- 1) Write down the information that you are given in the problem.
- 2) Convert the units on any quantities that are non-standard.
- 3) If Required, Determine the **Molecular Weight, MW**, of each species of interest from their weights.
- 4) Determine the **Number of Moles, n**, of each species of interest.
- 5) Balance the Equation in Moles.
- 6) Underneath the equation, write out the **Number of Moles, n**, of all species where this data is given.
- 7) Based on the **Number of Moles, n**, determine which species is in **Excess**.
- 8) Based on the **Number of Moles, n**, determine which species is the **Limiting Reagent**.
- 9) Use the correct number of moles for the **Limiting Reagent** in the equation to calculate the **Number of Moles, n**, of the species of interest..
- 10) Calculate the **Concentration, []**, of the species of interest.

$MW = W / n$	$W = MW \times n$	$n = W / MW$
$[] = n / V$	$V = n / []$	$n = [] \times V$

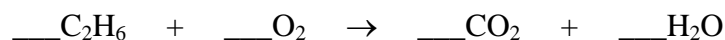
Note #1: Show all work for all questions.

Note #2: Use the number of significant figures in your final answer that is justified by the number of significant figures of the data you were given.

1. 12 moles of C_6H_{10} were reacted with 52 moles of Oxygen in 423 L of solvent. Predict the final CO_2 concentration.



2. 12 moles of C_2H_6 were reacted with 0.50 moles of Oxygen in 23 L of solvent. Predict the final CO_2 concentration.

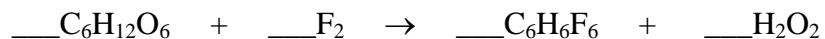


3. 12 moles of C_8H_8 were reacted with 52 moles of HCl in 128 L of solvent. Identify the final concentration of $C_8H_{12}Cl_4$.

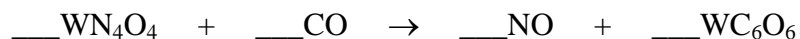


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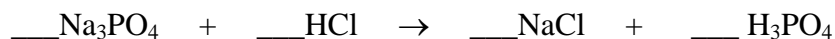
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4. 0.4 moles of $C_6H_{12}O_6$ were reacted with 12 moles of F_2 in 8.2 L of solvent. Identify the final concentration of $C_6H_6F_6$.



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5. 12 g of WN_4O_4 were reacted with 0.50 g of CO in 18.1 L of solvent. Identify the final concentration of NO.



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6. 5.00 g of Na_3PO_4 were reacted with 5.00 g of HCl in 36.4 L of solvent. Identify the final concentration of H_3PO_4 .



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7. 3.0 g of $C_6H_{12}O_6$ were reacted with 6.0 g of HBr in 2,100 L of solvent. Identify the final concentration of H_2O .



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8. 0.21 g of $Al_2(SO_4)_3$ were reacted with 0.32 g of HBr in 244 mL of solvent. Identify the final concentration of H_2SO_4 .

